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**LOAN 1816-FSM (SF)**

**BASIC SOCIAL SERVICES PROJECT**

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**Exit Report**

**Education Management Information Systems Adviser**

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Author: Alan Parkes, Education Management Information Systems Adviser

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Additional copies may be requested from:

BSSP Project Management Unit

Department of Health, Education and Social Affairs

P.O. Box PS 87

National Government of the Federated States of Micronesia

Palikir, Pohnpei FM 96941

Telephone: +691 320 2609

Fax: +691 320-5500

Email: [bssp@mail.fm](mailto:bssp@mail.fm)

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## List of Abbreviations

BSSP	Basic Social Services Project
COM	College of Micronesia
DOE	(State) Department of Education
EIS	Education Information System (synonymous with EMIS)
EMIS	Education Management Information System
FACSSO	FSM Association of Chief State School Officers
FSM	Federated States of Micronesia
HESA	(Department of) Health, Education and Social Affairs
JEMCO	Joint Economic Management Committee
NDOE	National Division of Education
NST	National Standardized Tests (for students)
NSTT	National Standardized Tests for Teachers
OIA	Office of Insular Affairs (USA)
PEDMS	Pacific Education Data Management System
PREL	Pacific Resources for Education and Learning
SBPMS	School-Based Performance Monitoring System
SEDS	State Education Data System
ToR	Term(s) of Reference
TSMS	Teacher and School Monitoring System
UNESCO	United Nations Educational, Scientific and Cultural Organization

## 1. Introduction

The EMIS adviser arrived in Pohnpei on April 6 2007 and commenced work in the NDOE office in HESA on April 9. The mission was scheduled for a single, 4-month input. The adviser worked in the NDOE in Palikir, FSM Capital, for most of the mission, apart from a short visit to the other three states of FSM (Chuuk, Kosrae and Yap) in late April to early May.

## 2. Major Achievements and Activities

### 2.1 SEDS database and streamlined data collection

Early in the mission, the adviser was informed of the importance of the preparation of the report for the JEMCO 20 education indicators. This report is required to be submitted by July 31 each year. The adviser thus conducted an investigation into the process of the submission of the data by the states and its subsequent processing at NDOE. It transpired that the data was submitted by the states in a variety of formats (different spreadsheet designs and so on). It was also apparent that there had been some difficulties in training the state DOE staff in understanding the indicators, and thus it was unclear if some of the data (for example, school drop out numbers) was reliable.

Though two states prepared their data using the Pacific Education Data Management System (PEDMS) system (developed under the auspices of PREL), the other two states used spreadsheets. Moreover, it was not apparent that the PEDMS enabled the data managers to actually produce the indicators, or submit the underlying data in a format useful for the national requirements.

The adviser proposed to Mr. Burnis Danis of the NDOE that the adviser create a database that would be delivered to the states, and would automatically calculate the indicators for that state based on data entered for each school by the state<sup>1</sup>. The school names for the particular state are displayed automatically, and data is then entered against these. This not only means that the state itself has access to their own indicators, but also that the format of data submitted by each state is the same. It was further proposed by the adviser that the database could be eventually migrated to the web, where it would serve as a state-based front end to the national EMIS.

A prototype of the database, written in Microsoft™ Access™, called *State Education Data System* (SEDS) was rapidly developed by the adviser, as a visit to the states was required early on in the mission, and this presented an ideal opportunity to demonstrate the database in the DOEs. During a visit of David Syne and the adviser to Yap, Chuuk and Kosrae in late April to early March, the partly completed database was demonstrated in the states and received very favourable responses from all personnel who were exposed to it.

SEDS was completed immediately prior to a *Workshop in Data Management and Education Information Systems (EIS)* organized by the adviser and delivered in Pohnpei in May (21-24). In this workshop, data managers from all four states were trained in using SEDS and began the process of entering their data into the system. The workshop is described in more detail in section 5.

All of the states submitted their data this year by simply delivering their SEDS database to NDOE. According to David Syne of NDOE, who collates the data every year, the process has been considerably smoother than in previous years. The report was produced on time.

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<sup>1</sup> The database calculates only 18 of the indicators (the school-based indicators). The remaining two are provided directly to NDOE by COM.

However, some problems remain in the data collection and collation process, as discussed in section 3.

The latest version of SEDS features a facility to print out all the indicators or save them to a Word™ file. This version is yet to be installed in the states.

## **2.2 Contribution to FACSSO EMIS resolution**

The adviser attended the FACSSO meeting, May 8 – 9 2007, and was specifically involved in the discussions that took place regarding the resolution calling for a unified FSM EIS<sup>2</sup>. The adviser described to the state school officers present that the notion that the national government was trying to “force” the states to adopt one system in preference to another was mistaken. The adviser further announced that a tool could be provided to extract data for the national EMIS from PEDMS, and thus the term “unified EIS” lends itself to a number of interpretations, including one in which distinct systems are combined to create a national system.

The resolution was passed. Apparently the same resolution had been rejected several times before. The adviser received comments from NDOE officers that the adviser’s statements at the meeting had played a key role in the resolution being adopted by the states.

## **2.3 Teacher and school monitoring system**

In addition to the EMIS-related activity, the adviser’s ToR also required him to work in the area of the so-called School-Based Performance Monitoring System (SBPMS). A lack of time available to spend in the individual states meant that most of the work had to be done in NDOE. During the adviser’s visit to Chuuk (working days April 30, May 1), he discussed the requirements of the SBPMS with the long term education adviser, Michelle Griffiths. Apparently agreement had yet to be reached on firm evaluation criteria for teachers. Though a previous BSSP specialist had produced comprehensive documentation on the subject, the general consensus seemed to be that the system this specialist had proposed was far too complex and unwieldy to be effectively put into practice. Ms. Griffiths suggested that this adviser created a “software framework” that could be adapted when necessary to meet the particular demands on the evaluation system eventually agreed upon.

Following the Data Management/EIS workshop, the adviser prototyped an Access™ database, that ultimately became the Teacher and School Monitoring System (TSMS). Like the SEDS database (see above), TSMS is state-based (though there is also a national version – see below), and already includes the basic details of all of the schools in the given state. The system was initially prototyped, using email feedback from the BSSP long term advisers for Chuuk and Yap / Kosrae (the long term adviser for Yap / Kosrae, Kevin Walsh, had not yet commenced his mission during this adviser’s April – May visit to the states. A user manual for the prototype was also produced and sent to the long term advisers, and a range of useful feedback on improving the system was subsequently received by this adviser. Sample screens from the system were also sent by email to the long term advisers for comment and advice.

The system enables the user to define evaluation categories (for example *Classroom Observation*, *Professional Development*, etc). Each evaluation category can be weighted, the

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<sup>2</sup> The term EIS, rather than EMIS, is often used in FSM. Apparently, due to the tension between state and national agencies over the PEDMS v. EMIS issue, the term “EMIS” is regarded in some quarters as having negative connotations. As far as this adviser can determine, and certainly in this adviser’s usage, the terms EIS and EMIS are synonymous.

weightings being such that they sum up to 100. For each category, the user can enter an accreditation value, i.e. a value that represents the minimum score a teacher should gain to reach an accreditable level in that category. Within each category, any number of criteria can be defined. For example, in the *Classroom Observation* category, criteria could be *Use of audio-visual aids*, *Promoting discussion in the class*, etc. Criteria can also be weighted such that the weights of all the criteria in a given category must sum up to 100. The scores for a given teacher are allocated to the relevant criteria (discussed below).

Data on teachers is also maintained in the system, including a teacher's basic data, education background, performance in the NSTT, teaching subject areas, previous schools in which the teacher taught before the present one, and professional development activities undertaken (courses attended, credits attained etc.).

Scores can be entered for any teacher based on the previously defined categories and criteria (see above). The system calculates the score for each criteria, the score for each category and the overall score, taking account of the weightings defined in all cases. Scores for the current year can be archived, and are then used by the system to generate charts and reports showing teachers' scores plotted against recent years.

The system also enables data for each school to be maintained, in the categories Infrastructure, Equipment, Materials, Library and books.

A range of graphs and reports can be generated including 12 different types of graph representing teacher performance. Examples are: *average performance scores by years of teaching experience and gender*, *average performance scores by NSTT results and gender*, *trend in individual teacher score over recent years* – enabling the viewing of each individual teacher's score trend, and *teachers with accreditable / non accreditable scores by each performance category*.

Reports can be generated based on teacher data or school data. Report facilities enable the user to specify combinations of data ranges, including the use of "wild card" field specification. For teachers, gender and accreditable / non accreditable scores can also be specified. A report can be generated for a given school, for all schools in the state, for elementary schools only, etc. A report can even be generated for an individual teacher.

Seven different teacher data reports can be generated. Some of these are very detailed. One shows scores for individual teachers by school, for example. Another shows the breakdown of the score by category and criteria for each teacher. Others focus on average scores by school (with or without gender breakdown).

A National version (*National TSMS*) was also produced. This is similar to the state version, except that in the national system data for all schools and all teachers in FSM can feature. It is anticipated that the data for the national system will not be entered, but obtained from the state TSMS. In National TSMS, reports can be specified as described above, but in addition the state can be specified. Similarly, the graphs have been changed so that the user can view a graph comparing all states, or just see the graph for a chosen state.

Each version (TSMS and National TSMS) is accompanied by a 28 page illustrated user manual. The manual shows (using screen images) the whole functionality of the system, and provides examples of graphs and reports that can be produced.

Training in the use of TSMS could not be carried out in the states by the specialist during this mission. Though there were funds available for a second state field trip, the BSSP adviser at Chuuk, Michelle Griffiths, was on leave when the visit could be taken, and the plan had been to train the BSSP advisers in Kosrae / Yap (Kevin Walsh). The project manager was not in favour of a visit by this adviser to Yap only, on the grounds of the costs incurred by travelling to Yap alone. An alternative plan was formulated, involving the training of two NDOE staff, David Syne

(for system support to the states) and Emma Nelson (for technical support in monitoring and evaluation). This training is described in section 5.

Since no additional visits to the states were made by this adviser (see immediately above), the system is yet to be installed in the states. It is recommended that David Syne installs the system in the states (see section 4).

### **3. Major Constraints**

#### **3.1 Activities of OIA representatives.**

It was reported by the BSSP long term education adviser in Yap that two OIA representatives had visited Yap and described statements made by them that not only undermined the efforts of NDOE but were also based on misinformation. The representatives declared that the states were fully committed to PEDMS and did not wish to change. This is simply not true. Firstly, PEDMS is not even used at Chuuk by the officer who prepares the data or the 20 indicators (she uses Excel™ spreadsheets). Secondly, at least one director (the then acting education director of Kosrae state) expressed a dislike of PEDMS, and declared that he would much prefer to use SEDS. Moreover, while the two representatives visited Pohnpei after they had visited the other states, at no point did they visit the NDOE, despite on one occasion visiting other government departments in Palikir (the national capital). It is this adviser's view that these two representatives should be censured for visiting individual states and making controversial statements without first obtaining a full account of the national initiative from the NDOE.

The adviser did manage to secure a meeting with them while they were in Pohnpei, at the Ocean View Hotel. The adviser discussed the NDOE's approach to EMIS with them, and demonstrated to them the SEDS database, with which they were very impressed. After this meeting, the adviser felt he had gone some way towards correcting some of the misconceptions they held, but it may not be so easy to repair the damage done in the states.

#### **3.2 Inability to obtain working version of PEDMS**

There is no PEDMS software in the NDOE. David Syne made repeated attempts to obtain a copy from Pohnpei DOE, and a copy was provided, but could not be installed on NDOE machines. Mr. Syne made several more requests for a DOE officer to come to the NDOE and help us install the software. However, though the officer undertook to come, this failed to happen.

The adviser had planned to create a tool to automatically extract SEDS data from PEDMS. With no working copy of PEDMS available to the adviser, this, of course was impossible.

#### **3.3 Time constraints**

Given the amount of work to be accomplished, the four months was not sufficient. This is agreed with by the project manager and Burnis Danis of NDOE. Thus, an application for a follow on mission is being made by the project manager. If the follow on mission is permitted, then the tasks to be carried out or encouraged by the adviser should be those from section 4 that have not already been carried out.

A particular consequence of the lack of time has been the inability to exploit the TSMS, train the state officers, and ensure the uptake of the system at the state and national levels.

### **3.4 No overlap between the mission and the installation of the new network**

It is unfortunate that the new IT education network, recently approved, was not installed while this mission was taking place. This made it very difficult to plan work that would have involved using a shared national database over the network. More work is needed to turn SEDS into a web-based front end to the national system (see section 4).

### **3.5 JEMCO 20 Indicator Report**

During July, David Syne was attending college for most of each working day, and, since Education Secretary Nena had informed Mr. Syne to obtain this advisor's assistance in writing the JEMCO 20 indicator report for 2007, it fell upon this advisor to write the main part of the report (the section based on the NST and NSTT data was written by Burnis Danis). When commencing the report, it came as some surprise to the advisor that the data submitted in the SEDS databases by the states had not been properly checked for missing items, and so on. This adviser checked the data from each state, school by school, then compiled spreadsheets, one for each state, indicating the schools for which data was missing, and which data items were missing in each case. These spreadsheets were sent to the schools by Burnis Danis in the week before the July 31 deadline, requesting that each state provide the missing data items. Only Kosrae state submitted the missing data, but this arrived too late as the Secretary of Education had already requested a final version of the report to be submitted.

The writing of the report and the checking of the data items took up most of one working week, time that could (and should) have been devoted to refinements and additions to TSMS. The adviser received some extremely useful suggestions from Kevin Walsh, long term BSSP adviser for Yap / Kosrae that could not be implemented due to the severe time constraints at the end of the mission.

However, writing the indicator report had one useful outcome. It revealed how the system of obtaining the data from the states, checking it and collating it before producing the indicator report requires further improvements (see section 4).

## **4. Recommendations (Progressing Activities)**

### **4.1 SEDS and the data collection process**

The NDOE should encourage the DOEs to continue to use the SEDS system for data entry and submission as part of the JEMCO 20 indicator process in 2008. In particular, the states should receive the most recent version, which includes a facility to print out or save the indicators in a file. This would be a useful additional tool at the state level.

The data submission process for the 20 indicators is in need of much further improvement. Some of this improvement could be made at NDOE. The data arrived at the NDOE during June, for the most part, but was not properly checked until mid to late July, by this adviser (see section 3.5). It should be the responsibility of someone in NDOE to check the data as soon as it arrives from the state, and to alert them as to any missing items as quickly as possible.

In connection with the immediately preceding point, it is clear that DOE data staff are still not adequately checking the data for consistency and completeness and cleaning the data before submitting it to NDOE. This is another reason for using SEDS; it provides an excellent way of quickly checking, school by school, if data items are missing.

To assist with the data checking, a new version of SEDS should be constructed before next year's data collection which issues warnings when unusual values are detected (0 entries in

teacher or pupil absences, for example). This would greatly assist the states to verify their data before submitting it to NDOE.

## **4.2 PEDMS**

The NDOE, through David Syne, who has a good working relationship with data officers at Pohnpei DOE, should obtain a working copy of PEDMS. This system can then be used to support the development of a tool to extract the relevant data from PEDMS and then import that data into SEDS. This tool could be installed in the states, particularly those that prefer to use PEDMS. This avoids the need to attempt to coerce the states into using any particular system, and endeavour that has been fraught with difficulties in the past.

## **4.3 TSMS**

TSMS and the associated manual should be delivered to the states, and the BSSP long term education specialists for Chuuk and Kosrae / Yap trained in its use. They, in turn can train the relevant local data management staff. Then feedback and suggestions for improvements and additions to the system could subsequently be obtained from the states. The BSSP education specialists could liaise between the DOEs and NDOE in this process.

David Syne is scheduled to make a trip to all the states from August 2, 2007. This would be an opportune time for the system to be introduced to the states. This adviser has already discussed this matter with Mr. Syne and he is willing to participate in this way.

Finally, the SEDS database should be linked to the TSMS to obtain enrolment data from SEDS for the TSMS system. If it is possible, much of the teacher data for TSMS could also be extracted from PEDMS, which contains details of all the teachers in a given state.

## **4.4 Miscellaneous recommendations**

- Some kind of state-based census should be carried out – the current projections are very inadequate. At the present time, many education statistics are very unreliable because of this.
- A meeting should be held between representatives of NDOE and OIA to discuss protocol of state and national visits. It is suggested that OIA representatives should visit (or at least contact) NDOE first to obtain information about national initiatives before visiting individual states.

## **5. Training Summary**

### **5.1 Workshop in Data Management and Education Information Systems**

This workshop (mentioned earlier in this report) was organized by the adviser and delivered in Pohnpei in May (21 - 24). The delivery of the workshop was assisted by David Syne and Burnis Danis, both of NDOE.

The workshop was mainly focused on the SEDS database and related issues, in an effort to streamline the process of the states' submission of the data for the JEMCO 20 indicators and the collation of that data into national statistics.

Two data managers from each state attended the workshop, along with representatives of the private chooks of Pohnpei. The main sessions of the workshop were:

- *Understanding and using education indicators.* Though, for obvious reasons, the focus was mostly on the twenty indicators, the participants were shown other indicators, particularly from those used by UNESCO. The aim of the session was to encourage participants to understand the value of indicators, and to consider them as an integral part of the education management process, and not merely as a yearly task imposed by the Compact arrangement. There was also a discussion using example indicators that are not as useful as they initially seem, and require refinement to be useful.
- *Data Cleaning.* Simple to apply techniques for data cleaning were introduced, and their application to a file of real school data (from another country) was demonstrated.
- *Introduction to the forthcoming national education IT network.* This session was presented by David Syne, with assistance from Burnis Danis and this adviser. The session focused on the architecture of the network, and its implication for education data processing and other activities at the state and national levels.
- *Using the SEDS database.* The managers from each state were issued with the current version of the SEDS database, and training in the use of the database was carried out by this adviser. The data managers then commenced the entry of data into their copy of the database (they had been issued with instructions prior to the workshop about all the data items they should bring with them). The remainder of the data was to be input after the participants returned to their respective states.

## 5.2 Technical assistance on EMIS in the NDOE

This adviser and David Syne of NDOE have worked together on this mission, sharing the same office area throughout the mission, and visiting the other states together in late April to early May. Mr. Syne is rapidly acquiring more skills in Microsoft™ Access™. This adviser has given Mr. Syne many tips on the construction of Access™ queries, particularly in connection with Mr. Syne's activities in the processing of the NST and NSTT data.

## 5.3 Training of NDOE officers in TSMS

Emma Nelson and David Syne were trained by the adviser in using the TSMS and National TSMS. Ms. Nelson is to be main user of the National TSMS, and provide technical assistance to the states in evaluation and monitoring, and user training. Mr. Syne will provide TSMS system support both in NDOE and in the states, including initial installation of the system in each state. Burnis Danis also attended the training session for TSMS. He expressed a very favourable view of the database and made a number of suggestions for additional features. David Syne was given additional training in the technical aspects of the system (the underlying structure of the database tables, etc.)

## 6. Progress against ToR

ToR	Progress Made
Review existing state, national and regional education management information systems -including the database design undertaken by PREL and undertaken by EMIS.	Reviewed current PEDMS and EMIS. In particular, considered the inability of the existing systems to easily produce the JEMCO 20 indicators. This led to the design of SEDS.

ToR	Progress Made
Undertake necessary fieldwork and liaison with state administrations to review key educational performance indicators that are relevant and clear to the school and community	Data Management / EIS workshop in May 21-24: reviewed key educational indicators with data managers from all four states. Trained data managers in understanding educational indicators, including the JEMCO 20 indicators and other educational indicators from UNESCO and other sources. Encouraged state administrators to consider indicators specific to FSM and specific to their own state.
Develop a plan for establishing and implementing a web based data management system for the national DoE.	SEDS is currently stand alone but recommendations are made to convert it to a web-based front end to the national EMIS once the new education IT network is installed.
Design a school-based performance monitoring system with national application that uses existing systems, new systems applicable to web based data management and procedures for collecting education data.	Designed and implemented TSMS and National TSMS. Subsequent work will involve connecting the state TSMS systems with National TSMS using the new IT network as the supporting infrastructure. It remains to be determined if "web-based" is the best approach, or a networked database is used instead.
Design a training program and materials for state education personnel, school staff, and selected community members for implementing performance monitoring and data-based decision-making system.	Not possible to train in the states in using TSMS due to lack of available personnel at key times. Training of national staff in TSMS carried out, and plan established for these staff to install TSMS in the states, train local staff accordingly, and provide technical and system support.
Deliver training to national and state education personnel in implementing the web based system for collection and analysis of web based education information.	National and state personnel trained in using SEDS. As previously stated, SEDS can be converted into a web-based front end to the national EMIS.

## 7. Documents Produced

The following refers to documents produced during this mission. They have not been included as appendices to this report, as they are already submitted.

- *Report on Data Management / EIS Workshop, 21-24 May.* Appears as an appendix to BSSP Quarterly report April-July 2007.
- *User manuals for TSMS & National TSMS.* Electronic copies issued to Louise Simpson, Project Manager, BSSP, and Emma Nelson and David Syne (NDOE).
- *JEMCO 20 Indicator Report 2007.* Definitive electronic copy now held by David Syne, NDOE and Burnis Danis, NDOE. Printed copy submitted to Secretary of Education and OIA.

## 8. Acknowledgements

The adviser would like to thank all the staff at NDOE for their good nature and friendliness, and in particular David Syne and Burnis Danis for being very agreeable colleagues. David and this adviser had an excellent working relationship, and often exchanged ideas, implementation tips, and so on. Thanks are also due to Louise Simpson, BSSP project manager, for her guidance, support and good humour.