Federated States of Micronesia
Education Sector

FSM JEMCO
20 EDUCATION INDICATORS REPORT
July 2007

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FSM JEMCO Education Indicators

Indicators of Educational Progress (as revised in February, 2007)

1. Number of schools by grade level (i.e., elementary and secondary schools)
2. Number of schools by size (i.e., enrollment under 50, 51-100, 101-200, 201-300, 301-500, 501-1000, and over 1000)
3. Number of schools operating half-day sessions
4. Average teacher attendance rate by grade level (elementary and secondary)
5. Number & percent of staff by education level (i.e., high school diploma, AA/AS, BA/BS, etc.)
6. Number of teachers/staff by grade level
7. Student-to-teacher ratio (private and public)
8. Base populations by school age groups (i.e., total no. of 4-5 yr. olds, 6-13 yr. olds, 14-18, 19-22 yr olds)
9. Percent of base school-age population in school by age groups (% of 4-5 yr. olds, 6-13 yr. olds, 14-18 yr. olds actually enrolled)
10. Student enrollment by grade level and gender
11. Average daily student attendance rate by grade level and gender
12. Drop-out rate by grade level and gender (use beginning and ending enrollment)
13. Number and percent of students achieving "Proficiency" level & above, at selected grade levels for standardized tests (e.g., SAT) or criterion-referenced tests (e.g., locally developed tests)
14. Completion/graduation rate for 8^{th} and 12^{th} grades (private and public)
15. Number and percent of grade completers going to high school and high school graduates going to higher education
16. Number of student textbooks by subject areas and grade level
17. Per pupil expenditure (annual or entire budget operating k-12 budget divided by enrolled student count)
18. Number of parent involvement activities per year by school and average number of parents participating
19. Student enrollment in local institutions of higher education (IHE)
20. Number of IHE graduates by each diploma/degree level

Must be reported by July 31 each year

Introduction

The following FSM JEMCO 20 Education Indicators Report July 2007 is the third submission of the FSM Education Sector for the 20 JEMCO Education Indicators.

The purposes of the 20 JEMCO Indicators are to report to stakeholders in the FSM on both the status and progress of education, meet JEMCO requirements, and improve decision making on education issues in the FSM.

The 20 JEMCO Indicators cover areas from basic enrollment data, and number of schools to student performance. There have also been some revisions in the indicators since last year, as indicated in the discussion below. This report will indicate where data has been included this year and areas The report also indicates some concerns over the quality of some of the data from last year, and areas where there is a continuing need to improve the data collection process.

Issues and Potential Solutions

There are still problems with data accuracy, consistency of reporting of data, and coding of data. While progress has been made in improving data cleaning, the consistency of reporting and coding, meeting deadlines and having data available on States' websites needs further improvement.

1. **Dual Education Management Information Systems**
   As for last year, there continues to be two distinct education management information systems established: Pacific Education Data Management Information System (PEDMS) and the FSM Education Management Information System (EMIS). However, at the Federated States of FSM association of chief state school officers (FACSSO) meeting held in May 2007, a resolution was passed representing a commitment to adopting a nationwide education information system. Work on establishing this system is in progress at the time of writing.

2. **Consistency of data reporting**
   In previous years, the states reported data to the NDOE using different formats and software packages to report their data. In order to avoid this for 2007, an ADB specialist developed an Access database, the State Education Data System (SEDS), which automatically calculates 18 of the 20 indicators when data is entered against each school (the remaining 2 indicators are based on data from College of Micronesia). At a data management / education information system workshop, organized by the ADB EMIS specialist and held in May, data managers from each state were trained in the use of this database, and began the entry of their data in the workshop itself. Each state database displays only the schools in the respective state. They subsequently delivered the populated database to NDOE. Thus, all the data were reported in a consistent form. Despite this, however, there were still significant delays in getting certain data from the states, in particular Yap.

   It is noteworthy that representatives of two states at the above workshop (one of them an acting director as well as a data manager) indicated that they would prefer to use the Access database than PEDMS.

3. Accuracy and cleanliness of data

Accurate population figures continue to be unavailable, and the age groups in the indicators are based on projections derived from data initially based on the 2000 census. These projections are carried out by the National Statistics staff.

In the workshop mentioned immediately above, the data managers were trained in a range of simple to execute data cleaning techniques. However, it was clear from some of the data returned from the states that such cleaning had not been effectively carried out.

4. Training for Data Managers

The 2006 20 indicators report stressed the need for training of EMIS personnel in understanding and using education indicators. The workshop described above contained a component in which the data managers were trained in understanding indicators, focusing on the 20 indicators but also introducing many more (some from UNESCO). It was also stressed that the indicators were not just important nationally, but for each state, in helping them to manage their education system.

5. Early Childhood Education (ECE)

Since October 2005, ECE has been incorporated into the State Departments of Education. Though many ECE centers are now administratively incorporated into local schools, their data actually continue to be reported separately by at least two of the states. In this report they are treated as separate (elementary) schools. This should remain so until they are fully incorporated into other schools, from which point their data will not be reported separately by the states.

Indicator 1: Number of schools by grade level

Table 1

Key:

Elementary: ECE (Early Childhood Education, below 1st grade) to 8th grade.
Secondary: 9th grade to 12th grade.

Notes: 1) Kosrae's Elementary Schools serve grades 1 – 9 with Kosrae High School serving grades 10 – 12
2) ECE and middle schools are included in the Elementary grade category
3) There are 8 schools in Chuuk serving grades 1-10.

Comments:

The above data for the elementary schools shows an increase in number of schools since 2006. However, the above table features all 77 of the ECEs in FSM in the "Elementary Category". Similarly, the eight more Chuuk Secondary schools in this year's table are because within secondary schools we have included the 8 Chuuk "middle schools".

There is reason to believe that the 2006 data is incorrect, as ECEs were reported inconsistently (Yap, for example did not report them at all). Due to the use of the SEDS database, we now have the definitive list of schools for FSM, including the correct level, status, etc. This is because, while using the SEDS database, the officers ensured that the school list for their own state (which was derived from a national list held in NDOE) was updated with all the correct details, defunct schools removed, and so on.

Thus, at the time of writing, the above table is the most accurate available representation of the school distribution in FSM.

Indicator 2: Schools by size

Table 2

Comments:
There are no significant changes in the school population distribution. This year, the indicator has been refined to include schools with populations in the ranges 501-1000 and 1000+.

There are 55 FSM public schools with student populations up to 100 (this is a slight increase on last year only due to the inclusion of more ECEs. Many of these schools are in remote areas or outer islands. Efforts are underway to consolidate schools where feasible (ie. the schools are readily accessible to one another). Graph 1 is a visual representation of the sizes of the public schools.

Graph 1:

Most of the public schools with over 300 students (11%) are in state centers and/or secondary schools and generally cannot be reduced in size without establishment of new school sites.

Indicator 3: Number of schools operating half day sessions

There are no private or public schools operating half day sessions for instruction. Early Childhood and lower elementary (grades 1-3) may have instructional days that end around noon time, however, that time frame is considered a full instructional day for these students.

Indicator 4: Average teacher attendance rate by grade level (elementary and secondary)

Table 3

This is the first year that teacher attendance rates have featured in the indicators. However, the figures suggest that a better system of teacher attendance data collection will need to be put in place for succeeding years. The blank boxes indicate that no teacher absences were recorded. This suggests that data was not available.

It is certainly true to say that the above figures for teacher attendance are much higher than is generally believed to be the case, since teacher absenteeism is widely regarded to be a significant problem throughout FSM.

Indicator 5: Number and percent of staff by education level

Table 4 shows all teaching staff in the FSM by qualification status. Graph 2 presents a representation of the data.

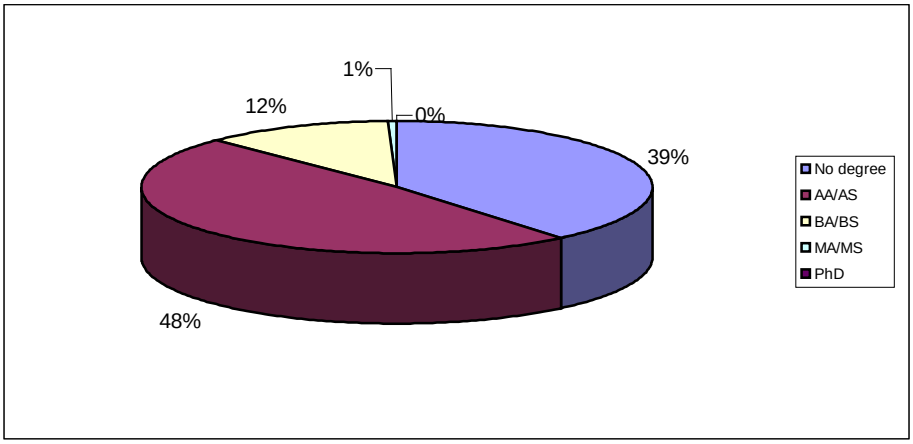
Table 4

Key:

No degree:	Those staff without a degree from an Institution of Higher Education. This group is composed of those with only a high school diploma or certificate, many with some college courses. The group also includes those that are undocumented. They may have attended school, but because of financial requirements, official documents may not be available.
AA/AS:	Associate of Arts or Associate of Science degree. This group also includes those who have obtained a Third Year Teaching Certificate from COM-FSM.
BA/BS:	Bachelor of Arts or Bachelor of Science
MA/AS:	Masters of Arts or Masters of Science
PhD:	Doctor of Philosophy

Graph 2 depicts the information from the above table.

Graph 2



Comment:
Despite the recent efforts to ensure that more teachers become qualified, there is only a slight (around 3%) decrease in teachers with no qualification, and around a 2% increase in teachers with AA/AS as their highest qualification. The proportion of teachers with BA/BS, MA/MS and PhDs remains virtually unchanged.

Further comparison cannot be made, as Table 5 considers only teaching staff, and the data from 2006 does not distinguish between teaching and other staff. In future years, it may be necessary to present the qualifications of other staff in a separate table.

All teachers in FSM have been issued with Provisional Teachers' Certificates that are valid until 1 October 2007. All FSM teachers are expected to achieve a Basic Certificate by this date so that they can continue teaching. The comparison of 2007 data with that from 2006 suggests that this will not be long enough to ensure that all teachers achieve the requisite qualification, and that a contingency plan will have to be put into place.

Indicator 6: Number of teachers/staff by grade level

Table 5

Table 5 shows the number of teachers and other staff in the elementary and secondary schools.

A comparison with last year's elementary staff levels cannot be reliably made, due to the inconsistencies in the reporting of ECEs in 2006.

For secondary schools, changes in teaching staff numbers since last year are as follows:

Chuuk: (+24%)
Kosrae: (-10%)
Pohnpei: (-7%)
Yap: (-32%)
National: (+3%)

Indicator 7: Student-teacher ratios by state

Table 6

This indicator has been refined since last year's report, and now features separate student-teacher ratios for elementary and secondary levels, for both public and private sectors.

Comparison of the ratios for elementary and secondary levels cannot be made with last year's indicator (for reasons stated immediately above). However, if we take the national overall ratios (i.e. combining elementary and secondary figures), for the individual states and for FSM as a whole, we find a very similar picture to that of last year (last year's figures in brackets):

Chuck 17 (19)
Kosrae 14 (13)
Pohnpei 19 (21)
Yap 9 (7)
National 16 (16).

Indicator 8: Base populations by school age groups (i.e., total no. of 4-5 yr. olds, 6-13 yr. olds & 14-18 yr. olds)

As stated earlier, the base population data is derived by the Statistics office through projections based on the data from the last national census.

Table 7

These projections are clearly not accurate enough to calculate the net enrolment ratio. In fact, it is not clear if the population data from the 2006 report was based on projections, particularly in the 6-13 age range, since in that age range all the values but one in last year's report are higher than the projections this office obtained from the Statistics Dept. in 2007.

Indicator 9: Percent of base school-age population in school by age groups (e.g. % of 4-5 yr. olds actually enrolled)

See above discussion on the population projections.

Table 8

Until a reliable population count is available, this indicator cannot be properly calculated.

Indicator 10: Student enrollment by grade level and gender

Table 9

Two important factors are shown by table 8 on enrollment by grade level.

1. All ECE enrollments for 2007 are included in the Elementary figures.
2. Analysis of the base population is required to determine if the ratio of girls to boys is a true reflection of the underlying population. This is another endeavor that cannot be adequately completed until a reliable population count is available.

Indicator 11: Average daily student attendance rate by grade level and gender

Table 10

The above data is for public schools only.

This is the first year that this attendance data has been fully collected, mainly because the SEDS database (described above) required the states to provide the data on a school by school basis, and the Data Management / EIS workshop (also described above) was used to train the data managers in its importance. Despite this, however, the data was incomplete, as discussed below. It should be determined if the DOEs are actually collecting all of the attendance data from the schools. The figures would be unusually high for a developed country, e.g. Australia, which has an attendance rate in the high eighties, and so must be regarded with some skepticism. With the right effort, however, the data collection system can be streamlined and reliable data collections made.

It was not possible to obtain complete data from Chuuk. 64 Chuuk schools were registered as having 100% pupil attendance rate, which is highly unlikely. The only other two schools declared to have 100% attendance rates were in Kosrae (one a private school, the other represented in Table 10, since Kosrae has only one secondary school). No data was returned for 49 schools in Yap. Data was returned for all Pohnpei public schools.

In terms of gender difference between attendance rates, Table 10 shows a very similar male and female profile. Considering the attendance rates in individual schools, one finds only two schools nationally where the difference in rates between the genders differs by more than 10%. Both of these schools are in Chuuk. In one, the male attendance rate was 22% below that of the females. However, these were both small schools (less than 50 pupils), where persistent absence by a small number of pupils could affect the rates significantly. Given that it seems the Chuuk attendance data is incomplete, these examples suggest the need for a close study of the complete data, to determine if differences between male and female attendance rates is a more common occurrence than our data suggests.

There were 6 other schools in which the attendance rates of males and females differed by more than 5%, but less than 10%. In all but one of these schools, females had a worse attendance rates than males. However, the above indicates that there is certainly no great gender disparity in pupil attendance rates.

Indicator 12: Drop-out rate by grade level and gender

Table 11

The definition of the term “drop out” was revisited in the May 2007 Data Management / EIS workshop discussed earlier. A definition had in fact been produced by PREL representatives in 2004: “if student doesn’t come for 40 days and does not request a transcript, that student is a drop out”. The workshop participants discussed the issues and it was agreed that a completely reliable definition was probably unattainable, though it was stressed to the participants that using a simple “beginning enrolments – ending enrolments”(which at least two states were doing) as an indicator of number of drop outs was not a reliable method.

Indicator 13: Number and percent of students achieving "Proficiency" level & above,

The FSM National Standardized Tests (NST) are the basis for measuring the percent of students in FSM achieving proficiency levels in their academic learning in mathematics, language arts and science. This year in a joint effort to reassess student learning and achievement, a consortium of FSM educators decided to change the levels of proficiencies from the three levels (*Mastery, Significant Improvement Needed, Not Proficient*) to four levels of learning proficiencies (*Advanced, Proficient, Basic, Below Basic*). The reason for this decision is that most of the classrooms in the FSM could relate to these four levels of proficiencies as they reflect their classroom situations on providing evaluation to student learning outcomes. In addition to that, the pattern of reporting student proficiencies and outcomes as means for accountability measures tend to advocate the four levels by major educational agencies in the United States. We feel that this shift would be easier for our education systems to use. (The test results from the NST are used as the basis for reporting the levels of proficiencies). Table 12.1 below displays these proficiencies.

Proficiency Levels
NATIONAL 2007
6th Grade NST Language Arts

Table 12.1

Table 12.1 indicates the actual number of *sixth graders* who participated in the 6th grade English language arts test and results of the test which allocates them in the given categories based on their performance and abilities. Of a total number of one thousand five hundred nine (1,509) six graders who participated in the 2007 Spring NST tests, *seventy four percent (74%)* of them are considered not proficient in the English language. Twelve percent (12%) are in the category of *Basic* and nine percent (9%) are proficient. The remaining five (5%) are placed in the Advanced category.

The table further indicates that the high percentage among these four categories is in the "*Below Basic*" section. This then suggests to us that higher percentages of our sixth graders are lacking the skills necessary to learn the language effectively and efficiently. A lot of factors could be attributed to reasons behind this. One of the main factors leading to this high percentage of students performing so poorly in most of the subject areas is that there are quite a high number of inadequate teachers who are not highly qualified and motivated to teach English as a second language. In many schools in the FSM, English Language is taught as if these students were first language speakers of English. FSM school systems definitely need highly qualified and motivated classroom teachers to teach English in the FSM.

Table 12.2

Table 12.2 is a simple analysis of year 2006 compared year 2007. In category number 2 where a one percent (1%) is shown, it is actually 1.25% but this has been rounded off to the nearest whole number. There are not really any significant differences between the results of the two years.

Proficiency Levels
NATIONAL 2007
NST Mathematics – 6th Grade

Table 12.3

The total number of sixth graders taking the mathematics test is one thousand five hundred thirty nine (1,539) sixth graders who participated in the 2007 NST Spring testing. Each of these tests (*Math, English, and Science*) are administered on separate days therefore the number of sixth graders is not the same in each case, due of absenteeism. As indicated in table 12.3, eighty two percent (82%) of all these sixth graders are considered in the "*Below Basic*" category. This means that these students did not receive adequate and appropriate mathematical skills to deal with mathematical problems. In the "*Proficient and Advanced*" categories a total of fifty four (54) sixth graders or four percent (4%) out of the 1,539 sixth graders who participated in this test possessed mathematics skills and could solve mathematical problems. Two hundred twenty five (5%) of them are at the basic level for mathematics at this grade level.

Proficiency Levels
NATIONAL 2007
For NST Language Arts- 8th Grade

Table 12.4

A total number of one thousand four hundred sixty five (1,465) eight graders participated in the language arts NST test this year. Out of this number, fifty six per cent (56%) of them are not literate by the measure of this standard. Monitoring and evaluation of these subject area programs need to be conducted therefore providing appropriate learning intervention so that student would show significant difference in the following years.

Table 12.5

Table 12.5 shows a comparison of this year with last year's results. There is an evidence of improvement indicated here in grade 8 test results. In the advanced category a 3% increase in noted as an improvement in the 8th grade English language arts program. There is a decrease of six percent (6%) in the "*Below Basic*" section. This is the intended and desired goal and that is to decrease the percent and number of students in the below basic category.

One of the factors for this improvement taking place at grade 8 language arts may be attributed to the fact that schools nowadays allocate their best teachers and resource materials to grade 8 because it is the transition grade between elementary and secondary schools. Many school administrators take grade 8 more seriously because it is at this point that public takes a closer look at the performance of eight graders in the high school entrance test. Therefore, it is at this level that greater competition arises among schools since good results at grade 8 represent a significant achievement for a school.

Information sharing has just been introduced in our school system; therefore more teachers are beginning to accept the challenge of teaching rather seeing it as just a baby sitting job. Results of NST tests are provided every year to teachers and the state departments of education through reports and newsletters to indicate student learning and achievement and the issues behind them. The need to identify and provide school improvement plans, not just for math, but for all subject areas, must be supported in order for students to improve in their learning endeavors.

Proficiency Levels
NATIONAL 2007
NST Mathematics – 8th Grade

Table 12.6

A total of one thousand four hundred fifty six eight graders took the math test and of that number only five percent (5%) or seventy seven (77) students performed at the *Advanced level*.

Table 12.7

This is a good chart which indicates significant improvement taken place. In the absence of monitoring and evaluation, it is hard to tell what actually happened at the state level. However, there is a six percent (6%) decrease of students in the below basic category that have been reallocated into the three higher categories. This in itself is a good signal for the eight grade mathematical program.

Proficiency Levels
NATIONAL 2007
NST Science – 8th Grade

Table 12.8

The science test is administered only at grade eight. There are as yet no available test instruments for grade 6 and 10, but they are under construction. However, this year is the second time that the science test has been administered in the FSM schools for all eight graders in the four states. The eight graders who participated in the NST science test totaled one thousand one hundred forty seven (1,147). Of these, ninety five percent (95%) were assessed to be at the below basic level. There are no students at the advanced level, only nine at the proficient level, and forty six at the basic level. The science program is not seen as a priority instructional program and the majority of our teachers shy away from imparting and teaching science because it is seen as being too challenging.

Table 12.9

Table 12.9 indicates comparison of school year 2006 and 2007 in the science test results for 8th grade. There is here at least some evidence of improvement, with (1%) of our eight graders at the lowest level "*Below Basic*" moving up to the next (Basic) level. The proficient level remains unchanged from last year.

Proficiency Levels
NATIONAL 2007
For NST Language Arts- 10th Grade

Table 12.10

There are six hundred sixty eight students in grade ten who participated in the NST 2007 Spring English language arts tests and out of this number, sixty one percent are placed in the "Below Basic" level. Forty nine percent are above below basic level.

Table 12.11

Table 12.11 is compares school years 2006 and 2007 for the 10th grade English language arts. One can see that there is evidence of improvement at both the proficient and basic levels. Most of these students at grade ten are the results of high school screening tests which select the students with the highest potential. A remaining small percentage represents those who work their way through the secondary level by way of remedial programs and other related programs.

Proficiency Levels
NATIONAL 2007
NST Mathematics – 10th Grade

Table 12.12

Table 12.12 represents a total of six hundred fifty eight 10th graders who participated in the mathematics NST test. There are more students performing poorly in the math program than in the English program. A total of 86% or five hundred sixty seven students are at the below basic level.

Table 12.13

Table 12.13 represents the results of the NST for 2006 and 2007, nationally. We can see from this table some encouragement, in that there is a 2% decrease in students at the "Below Basic level" and slight increase at the "Basic" and "Proficient" levels. If this pattern is maintained then we will know that our educational programs are working. Therefore, there will be a need to increase the level of instructional support through program development and research initiatives, in order to maintain these positive developments in the future.

Indicator 14: Completion/graduation rate for 8th and 12th grades

Table 13

This year a distinction is made between public and private schools. It is not clear from the 2006 report whether or not the figures include private schools.

Indicator 15: Number and percent of grade 8 completers going to high school and high school graduates going to higher education

Table 14

This data is very similar to that of 2006 for Pohnpei and Yap. However, the percentage of high school graduates proceeding to higher education for Chuuk has declined by around 13%, while the corresponding percentage for Kosrae has increased by 27%.

Indicator 16: Number of student textbooks by subject areas and grade level

Table 15

Though last year Chuuk did not provide data for this indicator, they did this year. In fact, only Pohnpei provided complete data for last year's report.
The elementary Math textbook entry for Chuuk appears to be an error. We are attempting to determine the correct figure.

From the available data, comparison can only be made with last year for Kosrae, Pohnpei, and Yap. According to this year's figures for Kosrae, the Elementary Math textbooks have declined in number by 58%, the Secondary Math by 35% and Language Arts secondary textbooks by 39% (not other data was provided by Kosrae in 2006, and hence no further comparisons can be made). Pohnpei shows a big increase in all but one class of textbooks as follows:

Elementary:
+ 285 in Math
+ 1861 in Language Arts
+ 8214 in Science
+ 272 in Social Studies

Secondary:
+405 in Math
+524 in Language Arts
-78 in Science
+1214 in Social Studies.

For Yap, differences between 2006 and 2007 are as follows:

Elementary:
+968 in Math
+2135 in Language Arts
+522 in Science
(Social Studies, no data)

Secondary:
+454 in Math
+330 in Language Arts
+580 in Science
+844 in 844 in Social Studies

The states were responsible for the selection and ordering of their own textbooks, in 2006. It is clear that a substantial number of additional textbooks in all subjects were purchased and deployed in the schools nationwide.

Indicator 17: Per pupil expenditure

Table 16

Key:
ESG—Education Sector Grant
PPE—Per Pupil Expenditure

Table 16 shows the total Education Sector Grant for each State. The Education Sector Grant is divided by public student enrollment to achieve the per pupil expenditure figure. The level of state Compact funds is set by a formula developed in agreement between the FSM National Government and the FSM States.

Since 2006, the changes in the PPE in each state is as follows:

Chuuk: +15% PP
Kosrae: -8% PP (likely to have been achieved by the cutback in teachers)
Pohnpei: +21% PP
Yap: +4% PP

Nationally, expenditure per student has increased by 13% since 2006.

Indicator 18: Number of parent involvement activities per year by school and average number of parents participating

Table 17

Chuuk has indicated a high number of parent activities with a low participation rate. There may be some misunderstandings in requirements of this indicator. At the Data Management/EIS workshop of May 2007 (mentioned above), participants were trained in the criteria for parental contributions, and were also given written instructions as to what were acceptable activities in this area.

Yap did not provide data for this indicator.

Accuracy of this data has not been verified. For the future, this indicator should perhaps be refined to enable a more sophisticated analysis of meaningful parental contributions to the school, perhaps defining sub criteria such as fund raising activities, organization activities, helping out in the school, etc.

Indicator 19: Student enrollment in local institutions of higher education (IHE)

Table 18

The data in tables 19 and 20 are provided by the College of Micronesia-FSM.

Indicator 20: Number of IHE graduates by each diploma/degree level

Table 19

The summer 2007-graduation figures are still being confirmed by the office of records and admissions. The FSM is not graduating a high level of students in its priority subject areas of Fisheries/marine science, agriculture and tourism.