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# Tuvalu Education Data Quality Assessment Report



With support from



**Australian Government**

**Department of Foreign Affairs and Trade**

Ministry of Education, Youth and Sports

Funafuti, Tuvalu

March 2018



# Tuvalu Education Data Quality Assessment Report

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## Acronyms

ASC	Annual School Census
CSD	Tuvalu Central Statistics Division
DCC	Development Coordinating Committee
DFAT	Department of Foreign Affairs and Trade (Australia)
DQAF	Data Quality Assessment Framework
ECCE	Early Childhood Care and Education
EMIS	Education Management Information System
ISCED	International Standard Classification of Education
MEYS	Ministry of Education, Youth and Sports
MFED	Ministry of Finance and Economic Development
NGO	Non-Governmental Organisation
NSDS	National Strategy for the Development of Statistics
OPM	Office of the Prime Minister
PIFS	Pacific Islands Forum Secretariat
SDG	Sustainable Development Goals
SMITE	Strategy for Monitoring and Improving Teaching Effectiveness
SPC	Pacific Community
TEMIS	Tuvalu Education Management Information System
TESP	Tuvalu Education Sector Plan
TMTI	Tuvalu Maritime Training Institute
TVET	Technical, Vocational Education and Training
UNESCO-UIS	UNESCO Institute of Statistics
USP	University of the South Pacific

# 1. Introduction

The Ministry of Education, Youth and Sports (MEYS) accepted a joint offer by the Secretariat of the Pacific Community (SPC) and the UNESCO Institute for Statistics (UIS) to participate in a capacity building project focusing on the improvement of education data quality in Pacific countries, a project supported by the Australian Department of Foreign Affairs and Trade (DFAT).

It was agreed that a joint UIS-SPC mission together with a national team would undertake a review of the quality of Tuvalu's education statistical system, expecting the resulting assessment would lead to UIS and SPC providing better support to Tuvalu in the various areas where needs have been identified. The mission took place from 20 to 28 June 2017.

The report was prepared by the Tuvalu national technical team from the MEYS in collaboration with the UIS Statistics Adviser and the SPC Education Quality and Assessment Programme Monitoring and Evaluation Officer. Its structure follows the DQAF report<sup>1</sup>.

The introduction to the report presents information about the Education Management Information System (TEMIS), provides a brief explanation of the data collection and production process, and outlines the national education statistical system. The second section of the report provides an overview of the education system in Tuvalu, including the organisational structure and regulation of the education sector. The data quality assessment process is discussed in the third section of the report and covers the membership and training of the mission and national technical teams, a summary of the evidence gathering process, and an overview of the consultation workshop.

The findings of the data quality assessment are presented in the fourth section of the report, and covers the eight principles of data quality: policy and legal framework, adequacy of resources, relevance, sound methodology, accuracy and reliability, periodicity and timeliness, consistency, and Accessibility and clarity. The findings were informed by the scores, comments, and evidence provided in the indicator matrix completed by the mission and national teams. Following the each finding, recommendations for improvement are suggested.

The recommendations are provided in the final section of the report and cover the institutional and policy environment, organisational/statistical processes, technical capacity, and human resource capacity. While the recommendations were discussed during the consultation workshop, they require further consideration and prioritisation by the national Development Coordinating Committee (DCC). A final report needs to be presented to the Minister of Education for formal endorsement of the recommendations.

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<sup>1</sup> Training Workshop Manual, ED-Data Quality Assessment Framework to Evaluate Administrative Routine Data Systems. UNESCO Institute for Statistics, 2017

## 1.1 Education Management Information System

The main source of data used for producing education statistics is the Tuvalu Education Management Information System (TEMIS). The TEMIS was developed in 2013 by a consultant EMIS adviser to the Ministry of Education, Youth and Sports (MEYS), and replaced an earlier EMIS system that had been in place for a number of years. The MEYS ICT unit has the mandate of collecting data from schools and has recently developed new data collection instruments that capture electronically the required data from schools.

There are a number of education related datasets that are topic-specific currently operational in the MEYS. This includes school profiles, student enrolments, teacher details, examination and assessment results, and attendance details. These datasets are integrated into a custom developed SQL Server database for storing the annual school survey data. The table below summarises the TEMIS datasets.

**Table 1: The dataset structure of the TEMIS system**

<b>TEMIS Dataset</b>	<b>Dataset Contents</b>	<b>Comments</b>
School details and resources	<ul style="list-style-type: none"> <li>- Profile information</li> <li>- Contact details</li> <li>- Resources</li> <li>- Buildings</li> <li>- Facilities</li> <li>- Water and sanitation</li> </ul>	<p>A register of schools is stored and maintained in TEMIS.</p> <p>All school resource are reported in ASC and stored in the dataset</p>
Student details and enrolment information	<ul style="list-style-type: none"> <li>- Identification details</li> <li>- Ability/disability conditions</li> <li>- Family information</li> <li>- Grade class assignment (SGCA)</li> </ul>	All student enrolment records are reported in ASC and stored in the dataset.
Staff details and teaching information	<ul style="list-style-type: none"> <li>- Personal information</li> <li>- Employment details</li> <li>- Career history</li> <li>- Professional development trainings</li> <li>- Grade class assignment (TGCA)</li> <li>- Teacher appraisals (SMITE)</li> </ul>	All teacher personal & teaching details reported in ASC, except professional development and SMITE teacher performance appraisals
Examination and assessment results	<p>Subject marks for:</p> <ul style="list-style-type: none"> <li>- National Year 8 Examination</li> <li>- Tuvalu junior Certificate (TJC)</li> <li>- Pacific Senior School Certificate (PSSC)</li> <li>- South Pacific Form 7 Certificate (SPFSC)</li> <li>- Tokaai Support Intervention Program</li> </ul>	Dataset is not currently available in TEMIS. Examination data is stored in a separate database (ATLAS)
Attendance details	<ul style="list-style-type: none"> <li>- Staff attendance and leave</li> <li>- Student attendance and leave</li> </ul>	Attendance data is collected by SSU but not entered into TEMIS

## 1.2 Data collection process

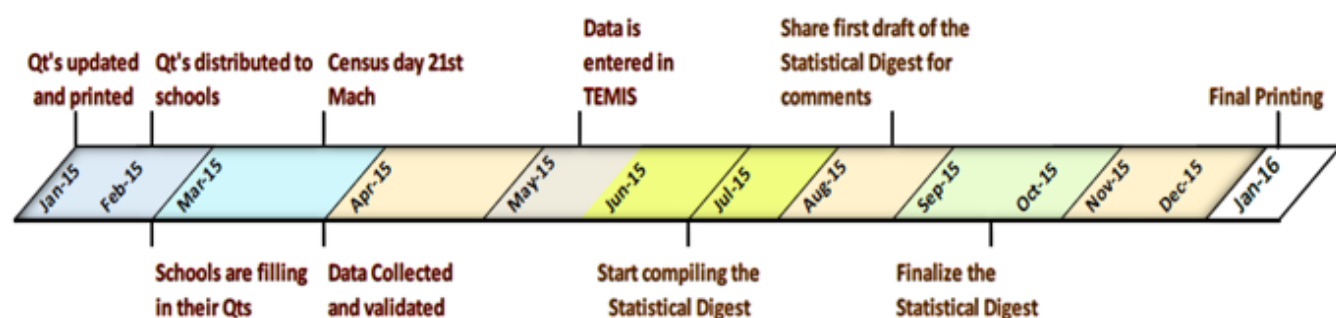
MEYS informs schools of the requirement to provide information for the annual school census which is held on 21<sup>st</sup> March each year. The survey questionnaires are updated and printed by the MEYS Education Department in January and then distributed to schools in early March. There are three different survey questionnaires for each level of education (ECCE, primary and secondary). The questionnaires instructs the Head of school to refer to the Information Management Handbook<sup>2</sup> for general instructions and where to find the information required to complete this survey.

Schools are requested to complete three separate forms for the annual school census: the student form, the teacher form, and the school resources form. The student form collects individual data about personal information, enrolment details, health and family information. The teacher form collects individual data on personal information, employment details, qualifications and teaching information. The school resources form collects information on teaching and learning resources, school buildings and infrastructure, educational facilities, water and sanitation, hygiene and electricity. A list of the data items collected from each of the forms is shown in the annex.

School head teachers and principals are permitted one month to complete the questionnaires based on data contained in the school records. Schools which have not submitted the forms by mid-April are followed up and assisted to complete the forms. On receipt TEMIS staff record the arrival of the completed forms and check the data provided by schools. The data from the forms are then entered either manually<sup>3</sup> or automatically into the TEMIS system.

There are seven distinct phases for processing data for TEMIS: generate and distribute survey forms; receipt of completed questionnaires; data entered into TEMIS system; validation of TEMIS data; tabulation of TEMIS data; report writing of the statistical digest; and dissemination of statistical report. The timeline for implementation of each phase of data collection and processing is shown below:

**Figure 1: Annual School Survey Timeline<sup>4</sup>**



<sup>2</sup> The Information Management Handbook was not available for review by the UIS/SPC mission team

<sup>3</sup> Not all schools in Tuvalu completed the forms electronically.

<sup>4</sup> Tuvalu Education Department 2015 Statistical Report.

### **1.3 Education statistical system**

The main producers of education statistics for Tuvalu are the Ministry of Education, Youth and Sports (MEYS) and the Tuvalu Central Statistics Division (CSD).

The MEYS collects data in an annual school census on early childhood education and schools, both primary and secondary, and on technical and vocational skills development in schools. The goal of the school census is to produce timely, accurate and relevant information about education in Tuvalu, and distribute this information widely to education sector stakeholders, to support the delivery of accessible, inclusive and good quality education to the people of Tuvalu, in an efficient and accountable manner. However MEYS does not collect information on technical and vocational education in private training providers, or on tertiary education provided by the University of the South Pacific (USP).

MEYS produces an annual statistical report that is aligned with the education sector plan for Tuvalu (TESP). The last report was produced in 2015 and includes sections on the access to and participation in education, quality of education, and management and financing. Access and participation in education includes strategic outcome monitoring and evaluation indicators on enrolment and progression through education levels; assessment of learning and teaching; and internal efficiency of the education system. Quality of education section includes strategic outcome monitoring and evaluation indicators on teacher trends and qualifications; school organisation and teacher deployment; and school infrastructure and quality. Management and finance section includes strategic outcome monitoring and evaluation indicators on education management and financing. Details of the indicator and data tables produced in the statistical report are provided in the annex.

The CSD is responsible for the collection and production of population statistics, as provided under the Statistics Act by conducting population censuses and household surveys. The Tuvalu Population and Housing Census 2012 report provides some analysis of school attendance and education attainment. A population census in 2017 is currently being planned which will also include questions on school attendance and education attainment. In 2016, the CSD conducted a Household Income and Expenditure Survey which also collects information on school attendance and education attainment as well as household spending on education goods and services.

CSD publishes official education statistics provided by MEYS on its website<sup>5</sup>. However the ten year time-series data has not been updated since 2006. The following information is available: primary and secondary school enrolments by year, sex and pupil-teacher ratio. The CSD has also published from the population census indicators on education attainment and school attendance rates, though the latest census data for 2012 is not publically available on the website.

MEYS has submitted data for international reporting, such as the UIS questionnaire on students and teachers from ISCED 0-4, from 2013 to 2015, though the 2016 data submission has been delayed. Data for the ED/B questionnaire on education finance and ED/C questionnaire on tertiary education is not reported for Tuvalu. Population statistics on education attainment and literacy rates have not been reported to UIS for the last population census in 2012.

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<sup>5</sup> <http://tuvalu.prism.spc.int/index.php/social/educatio>



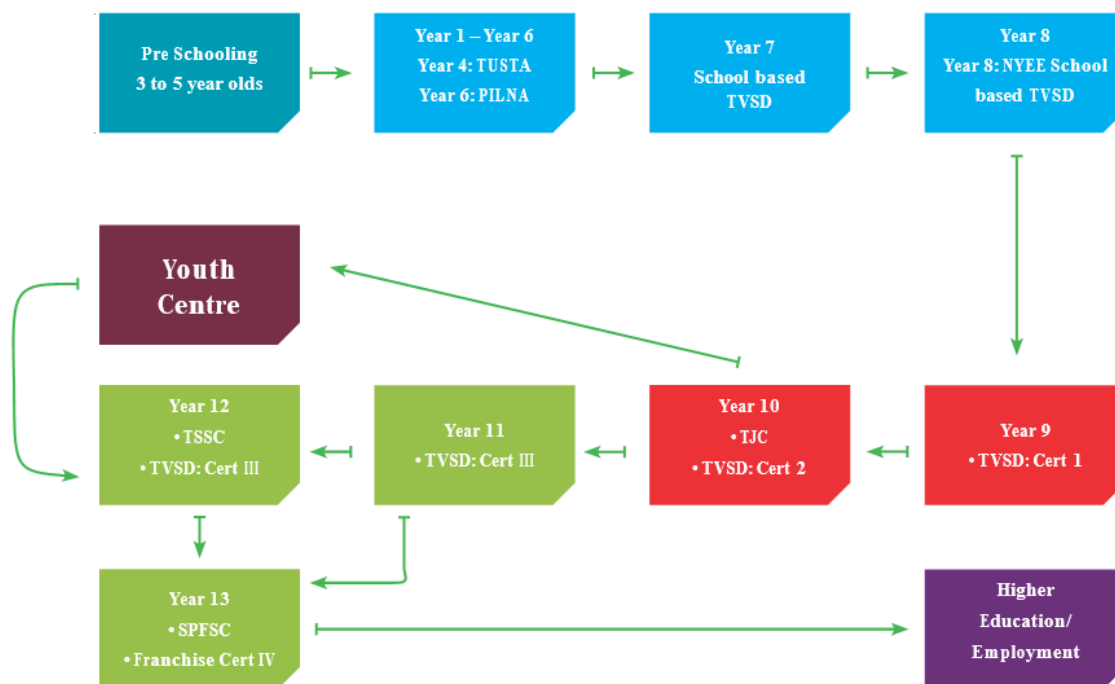
## 2. Overview of the Education System

In Tuvalu schooling is compulsory and free from the start of the school year in which children turn age 7 until the end of the school year in which they turn age 15. The compulsory ages coincide with the ISCED level 1 and 2 for primary and lower secondary education which are year levels 1 to 8. However most children start Year 1 at age 5 and complete Year 8 at age 13. There are five years of secondary education which starts at Year 9 (Form 3) and finishes at Year 13 (Form 7). Most children are of age 13 when they start secondary school and if they complete Year 13 they leave school at age 18.

In 2015 there were 18 pre-schools in Tuvalu which provide early childhood care and education for 3-5 year olds and are managed by island councils or civil society organisations. The ten primary schools are located on each of the nine islands, with an additional private school on the main island of Funafuti. There are two secondary schools: the government secondary school is located on the island of Vaitupu and a private secondary school located at Funafuti. Technical and vocational skills development (TVSD) is provided in primary schools for Years 7 and 8, and in secondary schools for Years 9 to 12.

An alternative pathway is available for students who wish to leave school after Year 10 and undertake technical and vocational education and training (TVET). There is one government funded TVET provider, the Tuvalu Maritime Training Institute (TMTI), and two privately operated TVET schools for computing/typing and book-keeping all located in Funafuti. The University of the South Pacific has a Funafuti campus which provides certificate, diploma and degree level courses through face-to-face teaching and distance learning modes.

**Figure 2: Pathways within the education system<sup>6</sup>:**



<sup>6</sup> Tuvalu Education Department (2016): Tuvalu Education Sector Plan 2016-2020. Ministry of Education, Youth & Sports, Funafuti, Tuvalu.

## 3. Data Quality Assessment Process

### 3.1 Technical Team

The UIS/SPC joint mission took place from 20-28 June 2017 with the purpose of providing a sector-wide review of quality issues in the production of education statistics in Tuvalu. The mission team included staff from UNESCO Institute of Statistics (UIS) and the Education Quality Assessment Programme (EQAP) of the Pacific Community (SPC). The UIS was represented by the Statistics Cluster Adviser, Apia Office and SPC by the Team Leader, Regional EMIS Facility and the Monitoring and Evaluation Officer, EQAP.

The composition of the national team included three Ministry of Education, Youth and Sports (MEYS) staff members: the ICT Project Officer, who was responsible for the operation of the TEMIS system following the departure of the EMIS Officer in 2016; the Examinations and Assessment Officer, responsible for the collection and processing of data from the Tuvalu Standard Tests of Achievement (TUSTA) as well as national examinations (TJC, TSSC, SPFSC); and the Pre-service Training Officer responsible for all government pre-service scholarship students in universities and institutions abroad. In addition, a Statistics Officer from the Central Statistics Division (CSD) initially joined the team, but was recalled to work on the forthcoming population census.

The national team was provided with basic training on the revised DQAF methodology<sup>7</sup>, covering the eight principles of data quality and their indicators. The team was provided with instructions on how to complete the scoring matrix for each indicator, including guidance on the rubric for each level, providing comments and evidence of existing practice and recommendations for improvement. The interview protocol for consultations with key stakeholders was presented and discussed. Five key interview questions and follow-up prompt questions were rehearsed. These were: Can you please, briefly:

1. explain the way you collect educational statistics in this country / in this institution?
2. explain how decisions are made about which data are collected?
3. say something about the organisational context of your work?
4. explain how data in your unit are being processed and analysed?
5. explain how data produced by your unit are being published / disseminated / made public?

Following the completion of the consultations, the mission and national teams met to discuss and finalise the scoring of the matrix. In conjunction with the national team, each member of mission team was responsible for scoring different aspects of data quality. That is, institutional environment (UIS), statistical processes and statistical outputs (SPC). The results of the compiled scoring for each principle and indicator are shown in the annex.

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<sup>7</sup> Refer to annex for the methodology of the revised Ed-DQAF.

### 3.2 Evidence Gathering

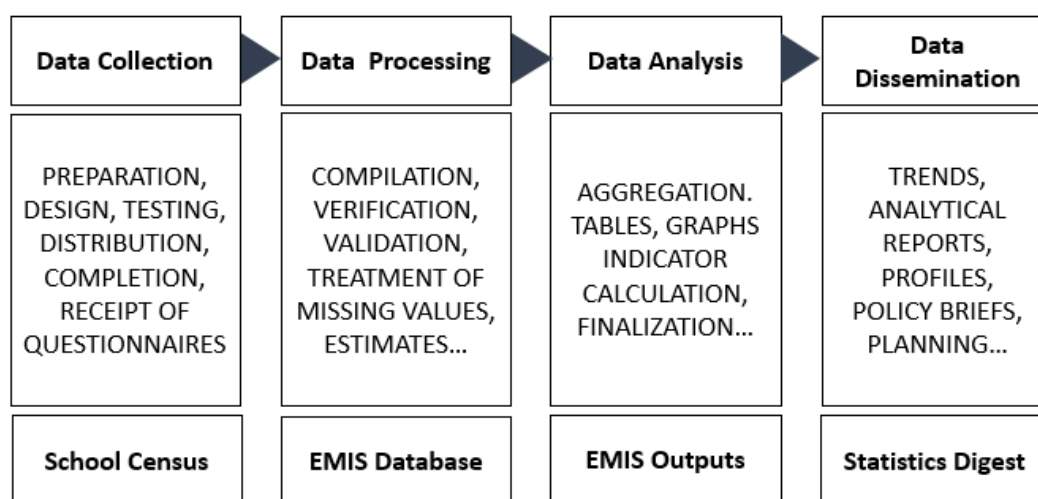
The team members consulted with the Honourable Minister for Education; the Permanent Secretary MEYS and Director of Education, Schools Unit and Pre-service Training Staff, Government Statistician of the Central Statistics Division, Human Resources Management officer of the Office of the Prime Minister; Budget and planning units of the Ministry of Finance and Economic Development; Deputy Director of the University of the South Pacific (Funafuti campus), and a representative of the Tuvalu Pre-School Association. The team also visited the Nauti primary school, the SDA Primary School, and the Fetuvalu High School in Funafuti as well as the Tuvalu Marine Training Institute (TMTI), and the Mareta Kabane Halo (MKH) Typing and Computing School. A detailed list of persons met can be found in the annex.

The team conducted interviews using the revised DQAF methodology<sup>8</sup> to assess the quality of education statistics in three broad domains, institutional environment, statistical processes, and statistical outputs. The team asked probing questions on the eight principles of data quality: policy and legal framework, adequacy of resources, user relevance, sound methodology, accuracy and reliability, periodicity and timeliness, data consistency, and accessibility and clarity. The responses to the questions were then recorded and analysed using a matrix template that scored the observed practices related to each dimension.

Documentation of the observed practices were gathered and analysed to provide supporting evidence for the interview responses. This included education acts, policies and regulations, education sector plans and reports, annual education statistical digests, EMIS documentation, and UIS questionnaires. The observations and documentation for each principle of data quality were then synthesised and form the basis for the analysis of the findings. The detailed findings, together with specific recommendations to address the findings, can be found in the body of the report.

The current state of the TEMIS database was assessed in relation to the data production chain: covering the main stages of data production: viz. data collection, data processing, data analysis and data dissemination. Figure 3 shows the key activities of the data production chain:

**Figure 3 Data Production Chain**



<sup>8</sup> UNESCO Institute of Statistics (2017) Code of Practice for Ministries of education in charge of statistics produced and disseminated through administrative routine data systems.

### 3.3 Consultation Workshop

Following the completion of the individual key stakeholder consultations, a workshop was held to formally present the findings and discuss the recommendations from the data quality assessment. All education sub-sectors were represented: i.e. early child care and education (ECCE), primary and secondary schools, technical and vocational skills development and training (TVSD/TVET) and the University of the South Pacific (USP). The government was represented by the Minister of Education, Permanent Secretary of Education, and senior officers of the MEYS Education Department. The NGO sector was represented by the Tuvalu Family Health Association.

The head of the national team facilitated the workshop by outlining the purpose of the DQA mission, the structure of the DQA framework, and the methodology of the DQA, including the scoring of the matrix. The national team led the presentation of the DQA findings and the mission team contributed to the discussion of the recommendations for each of the domains of data quality. For each domain, the workshop participants were asked to comment on the importance, appropriateness and relevance of each recommendation.

The discussions centred around how to better use the education data collected by government to improve teaching and learning at all levels of education, from pre-schools through to university. In closing MEYS was encouraged by the demand by stakeholders for use of education statistics produced from the Tuvalu Education Management Information System (TEMIS). Speaking about the DQA mission the Permanent Secretary said that “despite being a small education system, it can be an advantage when it comes to data collection and the promotion of the use of information”. He believed that “improvements in data quality also need to bring focus on improving the learning outcomes of Tuvaluan students in the classroom”.

**Figure 4: DQA Consultation Meeting, Funafuti.**



## 4. Data Quality Assessment Findings

### Institutional environment

The relevant principles of data quality for the institutional environment are: policy and legal framework, adequacy of resources, and relevance to user requirements. The assessment ratings for each principle are shown in Table 1, where the policy and legal framework is rated as poor, and the adequacy of resources and relevance as needing improvement.

**Table 1: Rating of Principles for Institutional Environment**

No.	Principle	Overall Score	Priority Level
1	Policy and Legal Framework	1 = Poor Statistics	High Priority
2	Adequacy of Resources	3 = Room for improvement	Low Priority
3	Relevance	2 = Fair or questionable	Low Priority

#### Principle 1: Policy and legal framework

The legal and institutional environment governing education statistics have a significant influence on the effectiveness and credibility of the Ministry of Education, Youth and Sports to produce and disseminate education statistics. The two sub-principles of the policy and legal framework: viz: responsibility for producing statistics and the confidentiality and statistical use of education data are both rated as poor (average scores =1.0).

While the responsibility for collecting, processing, and disseminating statistics is not specified in the Education Act 2008 or subsequent education regulations, the Statistics Act 1978 does provide for Government Ministries (e.g. Ministry of Education, Youth and Sports) to collect data from national agencies and institutions (such as schools) under their statutory authority. The TEMIS unit of MEYS is responsible for the collection of education data from schools, but there is no reference to the legal provisions in education policies. Specifically there is no EMIS policy that provides for the collection and production of national education statistics.

The TEMIS unit is informed of the education data collected by other government agencies, though no formal consultation or data sharing arrangements exists. For example, MEYS is aware of the data collected on teachers by the Office of Human Resources Management (HRM) but there is no coordination of data collection between MEYS and HRM. There is also a lack of integration of information held in the EMIS with other MEYS databases, or with education sector data held by other government agencies. For example, student data on examinations and assessment and student attendance data are not integrated into TEMIS.

There is no formal role for the national statistical office recognised by MEYS in the collection and production of education statistics. Therefore the statistical activities of the TEMIS unit is not governed by methods and standards produced by the Central Statistics Division (CSD). In particular, there is no national classification of education data and no statistical standards are applied to the data

collection and production processes. The TEMIS unit could benefit from attending regular meetings with CSD for advice on statistical methods for data collection, processing and analysis.

There are no documented provisions for ensuring students and teacher data are kept confidential and used for statistical purposes only. There is no reference in data collections forms sent to schools on confidentiality or use of the collected data. MEYS has no policy for ensuring individual data are used only for statistical purposes and prevented from unauthorised access. The development of an EMIS policy would provide for the protection of personal and private data on students and teachers held by MEYS as well as for the legitimate use of individual data for statistical purposes.

## **Principle 2: Adequacy of Resources**

The Ministry of Education, Youth and Sports need to ensure that resources are commensurate with the statistical programmes, personnel, facilities, equipment, technology, training and financing of their education management information systems. The three sub-principles of the adequacy of resources are respectively rated as fair (average scores=1.5) for staff and qualifications, meets quality standards (average score= 3.5) for computing and physical resources, and improvement needed (average score= 3.0) for financial resources.

Limited qualified and skilled staff have been allocated for EMIS functions and policies for retention of staff are yet to be developed. Following the resignation of the previous TEMIS manager, a temporary position was created to oversee operations of TEMIS. Currently there are two temporary staff appointed to conduct TEMIS operations, however they will require up-skilling to ensure the continuation of the data production cycle. A qualified education statistician will be appointed in early 2018. It should be noted that staff turn-over significantly impacted the data quality in the 2016 TEMIS cycle. An incentivised strategy for the retention of EMIS staff is necessary as staff turnover is high and a chronic problem across all government ministries.

Overall the office equipment for compiling statistics are adequate to perform the required EMIS tasks. In particular there is a good computing environment with file server and computer workstations. The TEMIS software (SQL Server) is working well and has been recently updated by an EMIS technical consultant. However there is a need for in-depth assessment of the software and its compatibility with the latest version available. There is adequate data protection through backup systems by the MEYS ICT unit. There is sufficient physical facilities, though the TEMIS staff share a room with other education projects.

Financial resources for compiling statistics are generally adequate to perform the required tasks to process the school survey data. However, while current funding is sufficient for collecting and compiling data, there is a critical need for more funding to support the development or extension of the TEMIS system. A costed EMIS development plan for integration of other data sources should be developed. Last year the costs for the production of a statistical publication were funded by a development agency, which now needs to be funded within the MEYS budget.

### Principle 3: Relevance

To be of good quality, education statistics need to meet the needs of users. The two sub-principles for the relevance of statistics: viz: user consultation and user satisfaction are rated as fair and poor respectively (average scores =2.0 and 1.0).

While there is no planned regular meeting of key education data users to consult on data needs, ad hoc consultation with key stakeholders does take place: for example, consultation on the content of the education statistics digest with government agencies and development partners. In 2016, a national stakeholder engagement workshop was held with the involvement of UNICEF and SPC to review data needs and content of the questionnaires. It is suggested that a regular consultation process involving key stakeholders across the education sector would enhance the relevance of statistical outputs for education policy and planning<sup>9</sup>.

There is a documented process<sup>10</sup> for reviewing the content and format of the annual school survey, though this did not occur in 2017 due to staffing shortages in the TEMIS unit. In the planning stage, the Education Statistician meets with MEYS Education Officers to discuss the ideal survey process timeline; any changes to the census process/survey forms based on lessons learnt from previous year school census; and any changes to the census process/survey forms based on feedback gathered through the review of the school survey. Feedback was also received from UIS in the design of the annual school questionnaires which were incorporated in the 2016 survey.

Stakeholder feedback is also sought to evaluate the efficiency of the annual census process, and note any lessons learnt/required changes for next year's census process. The review procedures involve evaluating the efficiency of the census process itself and as well as identifying changes/improvements that can be made to enhance the quality and efficiency of next year's process. Due to limited resources, however, no report on stakeholder feedback was prepared. It is suggested that a sector-wide data user working group meets regularly to discuss the scope, coverage and quality of data collected for producing national education statistics.

There is a process for user satisfaction to be monitored on a regular basis; the procedures manual states that reviewing stakeholder feedback is an ongoing activity that starts as soon as stakeholders receive major annual publications produced by the school census process. It is the responsibility of all Education Officers to pass on any feedback received from external stakeholders regarding the quality of information produced by the school census process (e.g. feedback on the accuracy, content and structure of the Statistics Digest). It is suggested that a data user satisfaction survey be regularly conducted for key education stakeholders to ascertain the extent to which available education statistics are meeting the needs of the sector. Also the education statistics digest could include a user feedback form so that improvements can be made in the content of the publication.

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<sup>9</sup> DCC suggests taking into account the importance of keeping data producers well informed of the needs for quality data for decision-making and views the relevance of data for allocating resources aligned with SDGs as important for government.

<sup>10</sup> Tuvalu School Census Procedures Manual, MEYS (draft)

## Statistical Processes

The relevant principles of the quality of statistical processes are methodological soundness and accuracy and reliability. The assessment ratings for each principle are shown in Table 1, where the methodological soundness and accuracy and reliability are rated as needing improvement.

**Table 2: Rating of Principles for Statistical Processes**

No.	Principle	Overall Score	Priority Level
4	Sound Methodology	3 = Room for improvement	Low Priority
5	Accuracy and Reliability	3 = Room for improvement	Low Priority

### Principle 4: Sound Methodology

The methodological basis for the education statistics needs to follow internationally accepted standards, guidelines, or good practices. The assessment of the sub-principles of sound methodology found that the concepts and definitions, and classifications need improvement (average scores= 2.5 and 3.0 respectively); and the scope and coverage and archiving of data meet the expected standards (both average scores= 3.5).

Concepts and definitions used are generally in accord with standard statistical frameworks. For example, the MEYS Statistical Report includes the definitions of education indicators and concepts<sup>11</sup> which are found in the UIS Technical Guidelines for Education Indicators. Also, the UIS Manual for the Survey of Formal Education is used for producing the annual statistical report and the UIS questionnaires. However there is no documentation on statistical concepts and definitions used in the annual school census questionnaire<sup>12</sup> or the TEMIS database; therefore it is not easy to assess whether they follow UIS guidelines. There is no evidence that different datasets in MEYS, including TEMIS, use standardised concepts and definitions. It is recommended that reference documents for the production of national education statistics, including data collection, processing and analysis, should be further developed. There also is a need for a review of data definitions and concepts used in other MEYS datasets to ensure standardisation of definitions.

The scope of data collection is not generally aligned with internationally accepted standards, guidelines, or good practices. That is, not all educational institutions are covered in the data collection; only public and private schools and pre-schools are included in TEMIS. There is a need to include all TVET and tertiary institutions in the data collection process, including TMTI, Typing schools, and USP. The Government supports the integration of data for TVET and tertiary sectors into TEMIS, especially as it will enable the government to monitor progress toward achieving SDG goal 4 targets related to TVET and tertiary education.

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<sup>11</sup> The definitions used in the MEYS Statistical Report can be found in the annex.

<sup>12</sup> While there is reference to an information management handbook in the data collection forms, the mission team could not locate this document on MEYS servers.



In the statistical report, data is disaggregated by sector (public and private) and sub-sectors (ECE, primary, secondary). As Tuvalu is a small country, geographical boundaries within the TEMIS are consistent with statutory and statistical regions - that is, islands of Tuvalu. However there is no map produced in the 2015 statistical report<sup>13</sup> that shows the location of schools on each island.

Classification systems are in agreement with national and internationally accepted standards, guidelines, and good practices. An agreed ISCED 2011 mapping file, including classifications exists (e.g. levels of education, field of study, literacy, vocational, technical, and student completion) and is embedded in the data collection system. The ISCED mapping is used in a separate query in TEMIS to produce the UIS questionnaire ED/A. It is recommended that a report be created within TEMIS to produce data for UIS questionnaire using the ISCED mapping. While the query can be executed, the 2016 UIS questionnaire has not been completed due to delays in the data collection process. The national classifications of class levels used in the TEMIS need to be updated to account for recent changes in the nomenclature to year levels.

Database principles are generally applied in the EMIS database. For example, in the TEMIS database structure, referential integrity is applied but some inconsistencies occur in queries. The naming of variables and tables is standardised, but nomenclatures are not systematically used e.g. classes and forms instead of years. It is suggested that the database design is reviewed to ensure the principles are applied in the current database. While TEMIS stores all information in the school, student and teacher questionnaires, there is a need to develop TEMIS further to include other data sources e.g. school finance and TUSTA assessments. Technical database documentation is available, including a data user manual. However the user manual needs to be used for training MEYS staff on the operation of the TEMIS system.

### **Principle 5: Accuracy and reliability**

Data sources and statistical techniques need to be sound and education statistical outputs need to sufficiently portray reality. The three sub-principles of data accuracy and reliability are respectively rated as needing improvement (average score=3.3) for data sources, poor for both data validation (average score= 2.3) and statistical techniques (average score= 2.0).

The available data sources in TEMIS provide an inadequate basis to compile comprehensive and sector-wide statistics. For example, the data source covers only partially the expected required information to populate SDG4 indicators. As the scope of the data collected in TEMIS is limited to the ECE and school subsectors, not all data for producing SDG indicators are available in TEMIS. In addition, there is a need to integrate data within sub-sectors for producing SDG indicators, e.g. literacy and numeracy assessments are not currently available in the TEMIS system. Although a list of pre-schools and schools is maintained and available in TEMIS, TVET and tertiary institutions need to be added to the list. In general, age is calculated based on dates of birth obtained from birth certificates and uses the census date of 21 March. However in some cases, birth certificates may not be issued to parents for school enrolment purposes.

TEMIS data are not annually audited to check the accuracy of source data. In fact there is no evidence that the TEMIS data is externally verified. To assure the quality of data, school supervisors should

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<sup>13</sup> A map showing the local of schools was included in the 2014 Statistical Report

check TEMIS data against the school register to verify data when visiting schools. Information is partially compiled on coverage, non-response and missing data. All schools report data on TEMIS, but missing data and non-responses are not reported. It is recommended that reports are created in TEMIS which provide a list of students with missing data and schools with non-responses. Mechanisms are in place to ensure that standardised school registers, including students and teachers details, are maintained, assessed and used. TEMIS data collection forms provide a standardised register of school enrolments, though schools have their own registers. Consideration should be given to adopt TEMIS student forms as an official record of enrolment.

The statistical techniques used in TEMIS data processing generally do not conform to sound statistical procedures, and are not documented. For example, the data collection instruments (school census, student and teacher forms) are designed appropriately for computer processing (using PDF forms), but have not been pilot tested with a sample of respondents. The data contained in the forms are not easy to verify; it is suggested that a declaration of total enrolments by year level is signed by the school principal. There are no instructions in the EMIS data processing manual as to how to process student data returned on the student enrolment forms. Item imputation methods exist and are implemented: e.g. there is evidence that imputation of ages was done for producing the statistical report, but there is no documentation for reporting purposes. There are no documented imputation techniques to account for missing student records.

## Statistical Outputs

The principles for the quality of statistical outputs are periodicity and timeliness, consistency and accessibility and clarity. The assessment ratings for each principle are shown in Table 3, where consistency is rated as questionable, and periodicity and timeliness, and accessibility and clarity are rated as needing improvement.

**Table 3: Rating of Principles for Statistical Outputs**

No.	Principle	Overall Score	Priority Level
6	Periodicity and Timeliness	3 = Room for improvement	Low Priority
7	Consistency	2 = Fair or questionable	High Priority
8	Accessibility and Clarity	3 = Room for improvement	Low Priority

### Principle 6: Periodicity and Timeliness

Education statistics need to be released following internationally accepted periodicity and timeliness. However the average score of 3.3 suggests there is still room for improvement, especially in relation to timely education statistics releases.

The school census day is an annual event which occurs in early March and has been widely observed by schools since its inception in 2006. Many schools have institutionalized the event into school calendar and make efforts to quality assure their school records prior to the data collection. However there is adequate evidence to suggest that not all schools conduct the administrative data collection on census day. The annual school census is scheduled for 21 March, but for 2016 and 2017, the date of data collection has not been kept and consequently data collection has been delayed. This resulted in data being collected from schools at different times in the school year. A calendar for the steps for producing the education statistics is included in the Statistics Report, but is excluded in the schools calendar for reporting to MEYS. It is suggested to ensure that the census date is in the calendar for school reporting and that the date is included in the census forms

Dissemination of data is planned to occur within the school year, though this did not happen for 2016 and is unlikely for 2017 due to delays in the data collection process. The 2015 Statistical Report was published in March 2016 which is 12 months after census date of March 2015. The report should be published within 12 months of the census date and include assessment data from the same academic year. The Government of Tuvalu recognises the importance of timely data and expects that education statistical reports are produced within the same school year (DCC meeting 23/2/18).

Immediately after the completion of data collection process, the data is verified and disseminated internally for administrative and planning purposes. The format are usually simple tabulations with limited analysis, which are then used to produce education indicators for the statistical report. The 2014 Education Digest was the first publication of TEMIS data and set a benchmark for future publications – preparations have started for the production of the 2016 Education Digest. Other line ministries are also provided with the data upon request. The Central Statistics Division (CSD) is the primary user of EMIS data which then published the data on the SPC website.

Data are internationally comparable with UIS standards, although not according to timeframes where there has been a 6 months delay in submission of questionnaires to UIS. The UIS ED/A questionnaire for the Survey of Formal Education was submitted after the deadline in 2016 and has not met the May deadline for 2017. Staff shortages due to high staff turnover within TEMIS raises the need for staff re-training on UIS questionnaires. Recent changes to UIS questionnaire also requires training for officers. A feasible alternative to mitigate the shortage of staff will be to develop functionalities for TEMIS to include generation of UIS questionnaires. SPC has developed a facility to produce the UIS ED/A form which should be submitted once data is verified as accurate.

## **Principle 7: Consistency**

It is important that released education statistics are consistent within a dataset and over time, and with other major datasets. The consistency of time-series data is rated as meeting the quality standard (average score= 4.0). However, the rating of internal and external consistency suggests that this type of consistency in final education statistics is poor to fair (average scores= 1.0 and 2.0 respectively).

Recent changes in school classification profiles, as a result of new policies, has not been consistently articulated in TEMIS. For example, the government decision to extend the primary school profile to include Year 9 created some inconsistency with TEMIS, which regards Year 9 as part of secondary school profile and identified as Form 3. The changing profile of the education system has not been

accounted for and changes needs to be made to the TEMIS system. There is no evidence of consistency checks being carried out as evidenced by errors in the Statistical Report. It can be suggested that more consistent data checking mechanisms should be put in place that complies with international standards and be incorporated into the EMIS policy documentation

Data series is available continuously and consistently for five years (2012-2016), though data for 2013 are unusually inflated by immigration of families from Nauru. The scope of data coverage has broadened over the years to include data set like height and weight of primary children and capturing of more detail dataset on support and ancillary staff. The data series in TEMIS can now provide more in-depth analysis that will allow stability in managing and forecasting trends for more strategic and informed planning decisions. Although the current data series in TEMIS is reasonably consistent, there is reason to believe that it would have been exceptionally more robust had it been able to incorporate historical data from older databases since 2005. The different applications under which the old databases were developed created compatibility issues, which prevented seamless integration between the systems. It is suggested that MEYS continue to develop time-series data for at least 8 years for a full cycle of primary education.

Apart from the school survey form, other sections within the Ministry have also collected data at a more regular interval. The School Supervisory Unit visits schools once a term and collects updated data on enrolments, teacher classifications and student and teachers daily attendance. Despite the availability of updated dataset from other sources within the Ministry, opportunities for data reconciliation remains limited and only at some levels. A difference still exists between enrolments by grade in examination dataset and enrolment totals in TEMIS. Similarly, there are noticeable differences between TEMIS enrolments and termly school enrolments collected by the School Supervisors. Work is required to improve data integration and sharing between sections within the Ministry. Some limited checking with census and household surveys has occurred, but reconciliation was not possible due to out of date survey and census data. It is recommended that reconciliation checks made with the forthcoming 2017 census and 2016 HIES survey.

### **Principle 8: Accessibility and Clarity**

Education statistics and metadata need to be easily available in a clear and understandable manner, and there needs to be adequate user support. The three sub-principles of accessibility and clarity are respectively rated as meeting expected standards (average score=3.7) for clarity, needing improvement for metadata (average score= 2.5) and poor for user assistance (average score= 1.7).

The 2015 Education Digest is presented in a clear manner, charts and tables are disseminated with data to facilitate concise and meaningful analysis. In 2016 an effort was made to improve the statistical digest by including indicator tables, infographics and commentary with interpretation. The data has potential for more in-depth analysis that are important for the needs of different stakeholders. MEYS must work collaboratively with UIS and SPC to peer review future publications to ensure increased utilization of TEMIS data for more informed planning and decision-making for government and non-government institutions. The statistical report is published as a hard copy and a soft copy is available on the SPC website, however the MEYS website is no longer functional despite reference

to availability in the report<sup>14</sup>. It is suggested that the MEYS website includes the Statistical Report, including Excel copies of statistical tables.

Data is disaggregated at national and sub-national levels by gender, level of education, by age for ECCE, primary and secondary levels only. TEMIS data coverage confines to education sectors under the jurisdiction of the Ministry of Education, Youth and Sports. TVET, non-formal and informal adult education programmes are outside the mandate of MEYS and therefore are not covered by TEMIS. These education sectors are administered and managed by other government ministries and non-government agencies. Data by island is available in the Statistical Report, but no information is available by school. It is suggest that a statistical profile be developed for each school compared to the national total, including all data reported in the census forms.

Metadata including information on concepts, definitions, classifications and other methodology, data sources and statistical techniques partially exists. There are some descriptions of metadata described in TEMIS documentation but are inadequate. No comprehensive document is available to define the key metadata for TEMIS. Metadata is accessible only to users of TEMIS - accessibility is restricted and special access rights permit authorized persons to view metadata. It is suggested that MEYS produce a metadata document that includes all statistical concepts, definitions, methods and calculations and publish on the website.

Mechanisms to register, monitor and respond to users request are not available and in many instances responses have predominantly been on an ad-hoc basis. There is no register to monitor users' requests. Assistance to users is provided on an ad-hoc basis and does not follow any systematic procedure. It is suggested procedures and processes are developed to respond to requests from data users, including monitoring process for tracking user requests and maintaining a register of standard requests that can be produced proactively for data users.

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<sup>14</sup> IT training has been provided to MEYS to setup a Ministry website, however web connectivity in Tuvalu is very limited which restricts the viability of a web dissemination option. Statistical data are stored on the SPC PRISM website and education indicators are available on the NMDI databank.

## 5. Recommendations

The recommendations in this section were developed based on the issues identified in the DQA findings. These recommendations should be considered by MEYS and the Government of Tuvalu and following endorsement, proposed activities can be developed to implement them and included in the TEMIS Data Quality Improvement Plan<sup>15</sup>.

The proposed list of activities aim to improve the quality of education statistics in Tuvalu by strengthening the institutional and policy environment, the organisation and statistical processes, and the technical and human resource capacity.

### 5.1 Institutional and policy environment

- Develop an EMIS policy that mandates the collection and scope of education data and publication of statistics
- Develop an ICT policy on data confidentiality, protection and security for the education sector
- Hold regular consultation meetings with multi-sector data users to ensure relevance of education statistics to national needs
- Establish a national education statistics taskforce to develop and implement a data quality improvement plan

### 5.2 Organisational and statistical processes:

- Expand data collection to include post-school TVET (TMTI, Typing schools, etc) and tertiary education providers (USP)
- Develop a standardized enrolment form for schools to officially record enrolment that can be completed and stored electronically
- Document procedures for data validation and verification of student and teacher data
- Integrate data from MEYS units on schools, teachers, students, finance and assessment into TEMIS database
- Establish mechanisms for data integration and sharing amongst government ministries and agency, public and private institutions
- Publish final data tables in Excel on a national website to improve data dissemination
- Prepare a sector-wide statistical report to include TVET and Tertiary Education sectors
- Develop school and institution profiles for each island to improve decision-making at the community level
- Develop a formal process for dealing with data requests, including keeping a record of data disseminated to key stakeholders

### 5.3 Technical and human resource capacity

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<sup>15</sup> DCC in a meeting held on 23/2/2018 have taken note of the report recommendations and the way forward for improving data quality for the education sector and supports the report's recommendations and the implementation of the data quality improvement plan by MEYS.

- Train TEMIS staff on designing and developing queries to respond to specific data requests
- Improve TEMIS officers' data analysis and report writing skills
- Train MEYS senior staff on the use of data for policy monitoring
- Ensure ICT and statistical support is provided under a qualified EMIS data management.

## 5.4 TEMIS System Improvement

The following recommendations are included in the Proposed TEMIS Improvement Plan for MEYS<sup>16</sup> developed by SPC.

- TEMIS software improvements are required to improve data accessibility, system usability, indicator reports, reporting interface, and school-based data entry.
- Improve data collection and processing timeframes by developing a school level interface to the EMIS that schools can use to access their data to support the management of the school.
- ICT connectivity advances require schools to have significant amounts of training, both in terms of basic computer skills and in the use of the a School Information System and EMIS.
- Increase the reliability and timeliness of school-submitted data by developing monitoring reports in EMIS that enable MEYS to contact schools with late or incorrect submissions.
- TEMIS should be developed using open source technologies that enable national ownership of the system software and development.
- School Information System software in schools should be piloted to see if it can provide improvements in data quality.

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<sup>16</sup> Regional EMIS Technical Support Facility (2017). TEMIS Improvement Plan and Recommendations. Secretariat of the Pacific Community (unpub).

## **5. ANNEXES**



# Tuvalu DQAF Average Scores

Key: 4=Meets quality standards; 3=Room for improvement; 2= Questionable Statistics; 1=Poor Statistics

Principle 1: Policy and Legal Framework	1.0
1.1 Responsibility for producing statistics	1.0
1.2 Confidentiality and statistical use	1.0
Principle 2: Adequacy of Resources	2.5
2.1 Staff and qualifications	1.5
2.2 Computing and physical resources	3.5
2.3 Financial resources	3.0

Principle 3: Relevance	1.5
3.1 User consultation	2.0
3.2 User satisfaction	1/0

Principle 4: Sound Methodology	3.2
4.1 Concepts and definitions	2.5
4.2 Scope and coverage	3.5
4.3 Classifications	3.0
4.4 Archiving of data	3.5

Principle 5: Accuracy and Reliability	2.6
5.1 Data sources	3.3
5.2 Data validation	2.3
5.3 Statistical techniques	2.0

Principle 6: Periodicity and Timeliness	3.3
6.1 Periodicity and Timeliness	3.3

Principle 7: Consistency	2.3
7.1 Internal consistency	1.0
7.2 Time-series consistency	4.0
7.3 External consistency	2.0

Principle 8: Accessibility and clarity	2.6
8.1 Clarity	3.7
8.2 Metadata	2.5
8.3 User assistance	1.7

## **Reporting requirements in Tuvalu**

### **a. National Strategy for Sustainable Development 2016 to 2020**

#### **Te Kakeega III: Tuvalu Government Priorities for Education:**

Most TKII goals in education continue in TKIII – in broad terms to continue to equip people with the knowledge and skills they need to achieve a higher degree of self-reliance in a changing world. TKII strategies targeted improvements in teaching quality/overall education standards through teacher training, better and well-maintained school facilities, more school equipment and supplies, and the introduction of a stronger, consistent and more appropriate curriculum. The expansion and improvement of technical and vocational training was another objective, as was serving the special needs of students with disabilities and preschoolers.

The TKII medium-term review in 2011 concluded that, of the 20 education objectives, seven were achieved (35%), eight were partially achieved (40%), and five were not achieved (25%). By early 2015, however, 16 objectives – those directly under the DOE – were achieved. Though most are ongoing in nature, and set to extend under TKIII, they will build on new challenges that have emerged. Test scores on national and international exams have improved, but scores remain inconsistent from year-to-year

#### **Education administration, management, enrollments**

The DOE has concluded that a more comprehensive Education Management Information System (TEMIS) is needed to support evidence-based reporting and intervention in areas of need. The TPR also needs to be disaggregated by subject so pupils get the teaching they need. A pool of high-quality relieving teachers is also needed for teachers on annual leave. Amendments need to be made to the Education Act in order to bring about the required changes in the education system. This includes incorporating more ICT in education.

Combined school enrolments – government and non-government – have averaged 3,376/yr from 2012 to 2014. Student:teacher ratio targets in primary (20:1) and secondary (12:1) have been met. The target ratio of 13:1 in Early Childhood Care and Education (ECCE) has not. Overall gender ratios in government schools is marginally in favor of girls, while in private schools the ratio favors boys. Training to qualify 22 ECCE teachers and 3 specialists to teach special needs students (including students with disabilities) will continue through 2016 and later, as is needed.

#### **Non-government schools**

Several pre-schools are run by parents in different districts of Funafuti. The teachers are paid by the Ministry of Education, who registers them and oversees their work. The registered but nongovernment Seventh-Day Adventist primary school and Fetuvalu High School, owned and operated by the Ekalesia Kelisiano o Tuvalu (EKT, the Tuvalu Christian Church) receive annual government cash grants to subsidise school operations. These grants will continue throughout the period of TKIII.

#### **Technical and tertiary education**

The Tuvalu Maritime Training Institute (TMTI) provides cadet training to future seafarers despite depressed market demand for Tuvalu seafarers. Somewhat less than 100 seafarers still work on overseas merchant ships, a number that has been in steady decline since the late 1990s. Prior to the global financial crisis that began in 2007/08, the government intended to work with local recruitment agencies to raise the number of seafarers on contract at any time to over 300, but this proved undoable. Training at TMTI is now 10-months, course work is more rigorous, covering more subjects, and class intake sizes are larger. GOT continues to investigate the potential to diversify TMTI to include seafarer training for work on fishing vessels operating in the tuna fleets around the Pacific islands. Training in the technical trades will continue to be provided by the Fiji Institute of Technology (FIT),

now a part of Fiji National University (FNU). The government makes other technical training available at institutes in Australia and NZ. These scholarship opportunities will continue.

Nurses, doctors and other medical professionals will continue to be trained at the College of Medicine, Nursing and Health Science at FNU, and at schools and medical facilities in Cuba, Taiwan, Kiribati and New Zealand.

Tertiary education continues to be provided at USP, FNU and institutions in Australia and New Zealand, the latter including courses and degree programmes that are not offered at institutions in Fiji. A few scholarship awards in diplomacy and international relations are provided for study in England. The number of overseas graduates currently outstrips the employment capacity of Tuvalu's domestic economy in general, and the government public service in particular. Returned graduates are taking jobs they once considered to be over-qualified for. One result has been an increase in graduates entering the private sector rather than government, historically considered the employer of first and last resort.

### **Investment in education and human resources**

Investment in education and human resource development is a foundation issue, fundamental to the country's future development. In broad terms, manpower planning to get the right mix of skilled and semi-skilled labour will continue under TKIII with funding increased relative to past levels of government appropriations, and higher investment from aid sources, if it's made available.

Government planning will target gaps in the domestic labor market, and employment in other parts of the Pacific region that Tuvalu labour can fill, through NLMP and the TPF to expand labor migration and labor mobility. But, for these efforts to be successful, secondary, technical and tertiary education must adopt uniform national certification and standards that are equal to, and recognized by, other countries in the region. This is an education priority for TKIII.

### **Te Kakeega III Strategic Area 7: Education and Human Resources**

Goal: Provide high quality education; equip people with knowledge and skills to develop more self-reliance; promote Tuvalu's cultural and spiritual values

#### **Key Performance Indicators:**

1. Maths, Science Graduate Teachers: Pupils ratio in Primary, Secondary in all schools.
2. Teacher: Pupil ratio in Primary and Secondary in all schools.
3. Net enrolment in primary education.
4. Proportion of pupils who start at grade 1 and reach last grade of Primary.
5. Ratio of annual budget allocation for primary education to total education budget.
6. Ratio of annual budget allocation for technical/ vocational education to total education budget.
7. 2010 Class Motufoua and Fetuvalu where they are in 2015 and 2020.
8. Pass rate at final examinations in primary and secondary schools in Tuvalu.
9. Percentage of TMTI graduates who find work on overseas vessels 2010-2015.

## **Tuvalu Education Sector Plan (TESP III) 2016-2020**

The TESP III will be continuously monitored on a quarterly basis and systematically and comprehensively evaluated by the Education Department. The Education Department will provide annual updates on key developments against the TESP III elements. If necessary, new elements to the framework will be added. Following consideration by the Minister, the TESP III will be amended to reflect these reports making it a living document.

The development of TEMIS will be critical as a monitoring tool for TESP III. A core set of indicators for TESP III will be developed and built into TEMIS as part of the annual education data collection from schools. A comprehensive situation analysis of the achievements of TESP III will be undertaken at the end of its implementation period. The following performance indicators will be incorporated in the monitoring and evaluation framework once TESP III 2016-2020 is finalized.

### Student Outcomes:

- Number of students accessing school-based student support services
- Completed research into student learning approaches - REAP
- ICT in schools strengthened

### Teacher Pedagogy:

- Number of teachers assessed as competent according to Competency Standards Framework for Tuvalu Teachers.
- Number of teachers whose planning addresses multilevel activities
- Number of teachers using eLearning services

### Access to Education at all levels

- Number of accessible schools according to national standards
- Gross/Net enrolment rates at all levels
- Retention rates
- Completion rates
- Intake rates
- Number of Year 1 pupils who have been through ECCE
- Strengthened partnerships
- Number of TVSD programmes available

### Curriculum Development:

- Implementation of National Curriculum Policy Framework
- Number of curricular materials and support resources developed and implemented
- Professional development to all sectors on the curricula materials and resources
- Effective implementation of curricular materials and support resources
- Number of OERs delivered in schools
- Teaching and Learning enhanced through Radio programmes
- Tuvalu Studies, ESD and Value education strengthened
- Education for sustainable development (ESD) developed and implemented for all schools.

## Assessment and Qualifications

- Teacher professional development programmes
- Assessment of Learning developed and implemented in all schools
- Assessment for Learning developed and implemented in all schools
- Assessment as Learning developed and implemented in all schools
- Standards and benchmarks for literacy and numeracy identified
- Teachers planning indicates literacy and numeracy benchmarks to assess student performance and plan learning activities to meet their needs.
- Administration, analysis and reporting on national

## Professional Development

- Teachers attend a minimum of 10 hours professional development per year.
- Quality Teaching and Learning Framework developed and implemented.
- Professional Development Policy developed and implemented.
- Number of teachers assessed as competent according to Competency Standards Framework
- School leaders pass the 360-Degrees Assessment approach for School
- Evaluation and monitoring template improved
- Number of TVSD teachers capacity built on delivering, assessing and reporting on students achievement
- Number of local skills and traditional knowledge delivered

## School Leadership

- Professional Development
- Quality Leadership Skills developed and implemented.
- Number of teachers trained on quality leadership skills
- School Leaders pass the 360
- Degrees Assessment approach for School Leaders
- Leadership code of conduct developed

## National Qualifications and Recognition

- All positions in NQA structure appointed
- All members of the NQA Board identified
- Staff trained to be accrediting officers of: Institutions/Programmes
- staff trained to be qualified quality assurance officers for Institutions/ Programmes
- Capacity building of local providers and stakeholders on accrediting processes and quality assurance processes and procedures on Institutions and Programmes
- Officers trained in the use and maintenance of the Skills and Qualifications Register
- Increase the number of local providers and a diversify programmes

## Schools/TVSD

- Number of schools that meet National Standards (NMQSS)
- School Infrastructure and Maintenance Manual (SIMM) developed.
- Schools complete SIMM as part of Strategic Plan and SAIP.
- Management of assets and facilities improved
- Number of TVSD facilities upgraded to meet accreditation standards

## ICT

- Develop and implement ICT in Education Strategy and Policy
- Develop eLearning processes and procedures
- Establish National Virtual School
- Establish Multimedia Learning Resources Development Studio
- Number of schools with relevant ICT equipment and support for student learning
- Number of extra-curricular resources developed
- Regular meetings held with relevant stakeholders on eLearning in education

## Governance

- Review and amend Education Act
- Develop and implement the Policy Development and Implementation Policy
- Develop legislations, policies strategies, frameworks and plans (as set out in TESP III)

## Policy and Planning

- Education Advisory Committee reviewed
- Quarterly meetings of Education Advisory Committee (once established)
- Organisational structure reviewed and implemented
- M&E system within the EdDep is developed and implemented.
- Number of schools with Strategic plans and SAIP (including SIMM)
- Number of schools with annual reports based on SAIP submitted
- Number of schools with Risk Reduction Management Plans
- Number of schools with evacuation plans
- Number of schools with Emergency Management Plans

## Data Collection and Research

- Number of educational developments and interventions captured in TEMIS/SIMS
- Number of schools installed TEMIS/SIMS
- Number of trainings for EdDep officers on TEMIS/SIMS
- Reliability of data improved
- Data sharing improved

## Education Partnerships

- Number of ECCE, Primary & secondary school management committees that undertake training
- Quarterly meetings with EdDep and Kaupule, Government Ministries, stakeholders and NGOs
- Quarterly meetings with EdDep and other line ministries
- Review current projects through external funding
- Portfolio of funding sources developed and updated
- List developed of skills, resources and technical assistance required

## **b. Regional**

### **The Pacific Education Development Framework 2009-2015 (PEDF): Monitoring and Evaluation Framework**

#### **Sub-Sector 1: Early Childhood Care and Education (ECCE)**

1. Net Enrolment Ratio
2. Gross Enrolment Ratio
3. Student/Teacher Ratio
4. Number (%) ECCE Centres which meet National Minimum Quality Standards
5. Implementation of quality ECCE curriculum
6. Existence of National ECCE Policy and Planning Framework
7. EMIS inclusive of ECCE data

#### **Sub-Sector 2: Formal Education**

8. Net enrolment ratio (NER)
9. Gross enrolment ratio (GER)
10. Percentage new entrance to 1<sup>st</sup> year primary with ecce experience
11. Repetition rate (RR)
12. Drop-out rate (DR)
13. Promotion rate (PR)
14. Transition rate (primary/secondary)
15. Percentage schools with effective access to IT.
16. Percentage out-of-school children returning to formal schooling
17. Literacy rate
18. Numeracy rate.
19. Student teacher ratio (STR).
20. Student classroom ratio (SCR).
21. Student Computer ratio (SComR)
22. Percentage schools with clean water and sanitation.
23. Percentage school leavers leaving with at least a national or regional qualification
24. Frequency of curriculum review
25. Compulsory education policy developed and implemented.
26. Language policy developed.

#### **Sub-Sector 3: Technical vocational education and training (TVET)**

27. Gross enrolment ratio in TVET programs (VGER) – ISCED2
28. Percentage TVET training providers registered with National Accreditation Authority
29. Percentage TVET courses professionally assessed/validated by NAA or IAA).
30. Number of courses supported by strong industry links or partnerships through sponsorship or guarantee of employment.
31. Number of TVET courses that are competency-based (work-based skills).
32. Number of graduates with national TVET qualifications.
33. Number of TVET graduates who are gainfully employed.
34. Number of industry stakeholders/employers engaged in development of policies for skills development.

#### **Sub-sector 4: Non-formal Education (NFE)**

35. Adult literacy rate (ALR).
36. Participation Rate in NFE
37. Participants/instructor ratio
38. Existence of NFE policy.
39. Percentage of NFE providers promoting gender equality.
40. Number of NGOs delivering NFE programs.
41. Existence of pathways between formal, non-formal and informal education.

#### **Sub-sector 5: Teacher development**

42. Percentage of Qualified/Untrained teachers as per national minimum standards
43. Existence of beginning teacher induction/mentoring programs in relation to teacher professional standards.
44. Percentage teachers/school principals that undertook targeted professional development within the past 2 years.
45. Percentage teachers assessed as requiring additional advice or guidance under the teacher performance management system.
46. Percentage teachers teaching outside areas or levels of curriculum specialization
47. Percentage teaching positions filled by staff from outside the country.
48. Percentage teaching positions unfilled by end of term 1.
49. Percentage teachers leaving the profession prior to retirement age.
50. Percentage ECCE teachers under government employment.
51. Teacher training curriculum that includes mandatory course on Disability-Inclusive Education.

#### **Sub-Sector 6: System Governance and Administration.**

52. Existence of mid-term strategy to ensure achievement of sector plans.
53. Percentage policy and planning staff involved in ongoing training and professional development
54. Clear outline of obligations by donors/executing agencies in line with individual arrangements and international declarations.
55. Percentage national budget (development and recurrent) allocated to education sector.
56. Percentage wealth of a country (GDP or GNI) allocated to education (per capita).
57. Existence of EMIS that is able to support evidence-based decision making and planning for improvement of education systems.
58. Percentage of qualified and trained personnel to operate and support EMIS.
59. PEDF M&E framework aligned with national M&E system.
60. National annual education statistics report published and disseminated.
61. Existence of communication strategy and agreements with other agencies to support education outcomes.
62. Reduction in irregularities to assure transparency and accountability.



## **c. International**

### **UNESCO (UIS) Survey of Formal Education**

Each year the UNESCO Institute for Statistics (UIS) runs a Survey of Formal Education to provide internationally comparable data on key aspects of education systems, such as access, participation, progression and completion, as well as the associated human and financial resources dedicated to them. The survey collects information on formal education programmes only classified by level of education as defined in the ISCED 2011 revision. The following questionnaires comprise the Survey of Formal Education: UIS/E/A on students and teachers (ISCED 0-4); UIS/E/B on educational expenditure; and UIS/E/C on students and teachers (ISCED 5-8).

#### **ISCED 0-4**

A2: Number of students by level of education, intensity of participation, type of institution and sex

A3: Number of students by level of education, age and sex

A4: Number of students in formal adult education by level of education, age and sex

A5: Number of students and repeaters in initial primary education by age, grade and sex

A6: Number of students and repeaters in initial lower and upper secondary general education by grade, age and sex

A7: Number of new entrants to Grade 1 in initial education and prior enrolment by age and sex

A8: Number of graduates by level of education, type of completion and sex

A9: Number of classroom teachers by teaching level of education, employment status, type of institution and sex

A10: Number of classroom teachers by qualified and trained status, teaching level of education, type of institution and sex

#### **Educational expenditure**

B2: Educational expenditure by level of education, source and destination in instructional and non-instructional institutions

B3: Education expenditure by level of education, type of institution and nature in instructional and non-instructional institutions

#### **ISCED 5-8**

C2: Number of students by level of education, intensity of participation, type of institution and sex

C3: Number of students by level of education, field and sex

C4: Number of new entrants and first-time new entrants by level of education and sex

C5: Number of students and first-time new entrants to tertiary education by age and sex

C6: Number of internationally mobile students in tertiary education by country of origin and sex

C7: Number of graduates by level of education, field and sex

C8: Number of academic staff by level of education, employment status, type of institution and sex

## **Sustainable Development Goal (SDG Goal 4)**

- 4.1.1. Proportion of children and young people: (a) in grades 2/3; (b) at the end of primary; and (c) at the end of lower secondary achieving at least a minimum proficiency level in (i) reading and (ii) mathematics, by sex
- 4.2.1: Proportion of children under 5 years of age who are developmentally on track in health, learning and psychosocial well-being, by sex
- 4.2.2: Participation rate in organized learning (one year before the official primary entry age), by sex
- 4.3.1: Participation rate of youth and adults in formal and non-formal education and training in the last 12 months, by sex
- 4.4.1: Proportion of youth and adults with information and communications technology (ICT) skills, by type of skill
- 4.5.1: Parity indices (female/male, rural/urban, bottom/top wealth quintile and others such as disability status, indigenous peoples and conflict-affected, as data become available) or all education indicators on this list that can be disaggregated
- 4.6.1: Percentage of population in a given age group achieving at least a fixed level of proficiency in functional (a) literacy and (b) numeracy skills, by sex
- 4.7.1: Extent to which (i) global citizenship education and (ii) education for sustainable development, including gender equality and human rights, are mainstreamed at all levels in: (a) national education policies, (b) curricula, (c) teacher education and (d) student assessment
- 4.a.1: Proportion of schools with access to : (a) electricity; (b) the Internet for pedagogical purposes; (c) computers for pedagogical purposes; (d) adapted infrastructure and materials for students with disabilities; (e) basic drinking water; (f) single-sex basic sanitation facilities; (g) basic handwashing facilities (as per the WASH indicator definitions)
- 4.b.1: Volume of official development assistance flows for scholarships by sector and type of study
- 4.c.1: Percentage of teachers in: (a) pre-primary; (b) primary; (c) lower secondary; and (d) upper secondary education who have received at least the minimum organized teacher training (i.e. pedagogical training) pre-service or in -service required for teaching at the relevant level in a given country

# Producers of education statistics

## Ministry of Education, Youth and Sports

### Information required from schools

#### A. Student Form

##### Student Information

- Student Name
- Guardian
- Date of Birth
- Gender
- Birth Register No.
- Place of Birth
- Height
- Weight
- Nationality
- Religion
- Home Island
- Village
- No. Household Members

##### Student Enrolment

- Class
- Section

##### Student Health

- Assistive Devices
- Human Assistance
- Difficulty (Disability)
- Immunization Up-to-date

##### Family Information

- Father Name
- Father Education
- Father Occupation
- Mother Name
- Mother Education
- Mother Occupation
- Emergency Contact

#### B. Teacher Form

##### Teacher Personal Information

- Teacher Name
- Gender
- Date of Birth
- Marital Status
- No. of Kids
- Island
- Village
- Phone/Email

##### Employment Details

- Employment ID
- Provident Fund IS
- Salary Level
- Year Began Teaching
- Date of Appointment
- No. Years Teachers
- Role (Type of teacher)
- Status (Perm/Contract)

##### Qualification

- Type of Qualification
- Field of Qualification
- Educational Institution
- Year of Qualifications
- Teaching Qualification

##### Teaching Information

- Class/Form
- Section
- Subjects

## C. School Resources Form

### Teacher Resources

- Teacher's Guide: (Qty./Cond.)
- Textbooks: (Qty./Cond.)
- Reference Book: (Qty./Cond.)
- Lesson Plan Register: (Qty./Cond.)

### Student Resources

- Textbooks: (Qty./Cond.)
- Exercise Books: (Qty./Cond.)
- Chart: (Qty./Cond.)
- Library Books: (Qty./Cond.)
- A4 Paper: (Qty./Cond.)
- A3 Paper: (Qty./Cond.)
- First Aid Kits: (Qty./Cond.)

### School Buildings and Infrastructure

- Steps/ramp to school main entrance
- No. of Classrooms (+ access to S/D)
- No. of Staff Quarters
- No. of Dormitories
- Library
- Store Room
- Science Lab
- Workshop
- Computer Lab
- Art/Music
- No. of Floors (+ access to S/D)
- No. of Rooms w Emergency Exits
- Access to Assembly Area for S/D

### Facilities

- Furniture (chairs/desks/etc.)
- Equipment (copier/printer/OHP etc.)
- School facilities (+access to S/D)
- Learning adaptations for S/D

### Water

- Main Water Source
- Quantity/Volume/Condition
- Water Treatment
- Frequency of Water Source
- Students have Drinking Bottles
- Adequacy of Water Source
- Water facilities access. To S/D

### Sanitation

- No. of Toilets
- Type of Toilets
- No. of Communal Toilets (func./acc.)
- No. of Girls Toilets (func./acc. to S/D)
- No. of Boys Toilets (func./acc. to S/D)
- No. of Teacher Toilets (func./acc.T/D)
- Toilet Paper Available
- Sanitary Pads Available
- Rubbish Bins in Toilets
- Method of Rubbish Disposal

### Hygiene

- Handwashing Facilities
- Soap for Handwashing
- Hygiene Taught
- Toilet Cleaning Supplies

### Electricity

- Electric Power Available
- Electric Power Supply

## Production and dissemination of statistics

The latest published MEYS Statistical Report is for 2015 and provides detailed information on primary and secondary students and teachers in Tuvalu. The following is a list of tables and figures available in the report.

### List of tables

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- Table 2: School enrolment in Funafuti and Outer Islands by education level and sex, 2012–2015
- Table 3: Number of children enrolled with special needs, by sex, 2012 – 2015
- Table 4: Number of students in primary and secondary schools taking TVET courses, 2012–2015
- Table 5: Gross and net enrolment ratio in ECCE, 2012–2015
- Table 6: Gross and net enrolment rate in primary education, by sex, 2012–2015
- Table 7: Gross and net enrolment rate in secondary education, by sex, 2012–2015
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- Table 9: New entrants in primary Year 1 who have participated in ECCE programme, by sex 2015
- Table 10: Estimated out-of-school children in primary education, 2015 (%)
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- Table 21: PTR by island in ECCE, primary and secondary education, 2015
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- Figure 17: Total number of teachers in ECCE, primary and secondary, 2011–2015
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- Figure 20: MEYS education expenditure, 2012–2015 (% of GDP)
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- Figure 22: MEYS budget as proportion of Tuvalu government budget, 2012–2015
- Figure 23: Share of education expenditure of total EdDep expenditure, by level of education (%)
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- Figure 26: Teachers' salaries by level of education, 2012–2015 (% of total education budget)

## Definitions in use

### MEYS Statistical Report 2015

Age participation rate: The percentage of enrolments at a specific level for children of a specific age, usually the official age for that level of schooling.

Dropout rate: Proportion of pupils from a cohort enrolled in a given grade at given school years that are no longer enrolled in the following school year.

Dropout: Students who dropped out in 2015 for unknown reasons.

Absent: Number of students absent during TEMIS survey completion.

Transfer in: Number of students who transferred into a school from another school within the country or from another country.

Transfer out: Number of students who transferred out to another school whether within the country or in another country.

Not attending school regularly: Students who enrolled at the beginning of 2015 but were not attending school regularly for unspecified reasons

Gross enrolment ratio: Total enrolment in ECCE, primary or secondary education expressed as a percentage of the total population of children who are of the official age group for that level of education.

Gross intake rate: Total enrolment in a defined school level (e.g. Year 1) as a percentage of the total population of children who are of the official age group for that level of education (e.g. aged six years).

Gender Parity Index: The female value for any indicator is divided by the male value to show the gender parity of the indicator with a value of 100 or very close to it indicating gender parity; a value over 100 indicates a difference in favour of females and a value less than 100 a difference in favour of males.

Net enrolment ratio: Total enrolment of pupils of the official school age group as a percentage of the total population of children who are official age group for that level of schooling.

Net intake rate: Total enrolment of pupils of the official age in a defined school level (e.g. Year 1) as a percentage of the total population of children who are of the official age group for that level of education (e.g. aged six years).

Promotion rate: Proportion of pupils from a cohort enrolled in a given grade at a given school year who studies in the next grade in the following school year.

Repeater rate: Total number of pupils who are enrolled in the same grade as in a previous year, expressed as a percentage of the total enrolment to the specified grade.

## **Methodological annex:**

### **UNESCO Institute of Statistics Code of Practice for Ministries of education in charge of statistics produced and disseminated through administrative routine data systems**

Credible education statistics are vital since they are essential to the design, formulation, monitoring and assessment of education plans and programmes.

This credibility is a value that gains strength over time thanks to the generation of quality statistics that comply with standards, principles and norms relating to the production process and statistical activity as a whole.

Education statistics are made of information and data of different types gathered from different data sources (administrative data, assessment data, household surveys, and population census). At country level, Ministries of education are in general the main body in charge of statistics produced from administrative routine systems (commonly referred as “EMIS”).

The UIS Code of Practice (CoP) for Ministries of education aims to ensure that these statistics produced from administrative data are not only relevant, timely and accurate but also comply with principles of professional independence, impartiality and objectivity.

The CoP is constituted of 8 principles covering the institutional environment, the statistical production processes and the statistical outputs. A set of indicators of good practice for each of the Principles provides a reference for reviewing the implementation of the Code. It is based on the Ed-DQAF which provides guidance and evidence for the implementation of the indicators.

The Cop is a technical instrument containing practical rules for ensuring the credibility of statistics produced and disseminated by MoE at the national level. It is intended to serve as a guide for improving the quality of statistics produced at global level, to improve the quality of official statistics and build trust in users by encouraging the application of best international methods and practices in statistical production and dissemination from administrative routine data systems.

#### **Institutional Environment**

Institutional and organisational factors have a significant influence on the effectiveness and creditability of Ministries of education developing, producing and disseminating education Statistics. The relevant aspects are Policy and legal framework, Adequacy of resources, Quality awareness, Professionalism, Transparency and Ethical standards

#### ***Principle 1: Policy and legal framework***

Legal and institutional environment governing education statistics have a significant influence on the effectiveness and credibility of a Ministry of Education to produce and disseminate education statistics.



Indicators:

- 1.1: The responsibility for collecting, processing, and disseminating statistics is clearly specified.
- 1.2: Respondents' data are to be kept confidential and used for statistical purposes only

***Principle 2: Adequacy of resources***

The Ministry of Education ensures that resources are commensurate with the statistical programmes, personnel, facilities, equipment, technology, training and financing of their education management information systems.

Indicators:

- 2.1: Staff and their qualification are commensurate with EMIS functions and policies for retention are in place
- 2.2: Computing resources and physical facilities are commensurate with statistical programs
- 2.3: Financial resources are commensurate with statistical programs

***Principle 3: Relevance***

Education Statistics meet the needs of users.

Indicators:

- 3.1: Consultations with data's users are done periodically.
- 3.2: User satisfaction is monitored on a regular basis and is systematically followed up.

**Statistical Processes**

International standards, guidelines and good practices are fully observed in the processes used by the Ministries to organise, collect, process and disseminate official Statistics. The credibility of the statistics is enhanced by a reputation for good management and efficiency. The relevant aspects are Methodological soundness.

***Principle 4: Sound Methodology***

The methodological basis for the education statistics follows internationally accepted standards, guidelines, or good practices.

Indicators:

- 4.1: Concepts and definitions used are in accord with standard statistical frameworks.
- 4.2: The scope is in accord with internationally accepted standards, guidelines, or good practices.
- 4.3: Classification systems are in accord with national and internationally accepted standards, guidelines, or good practices.
- 4.4: Archiving of source data and statistical results based on sound database principles.

***Principle 5: Accuracy and reliability***

Data sources and statistical techniques are sound and education statistical outputs sufficiently portray reality.

Indicators:

- 5.1: Available data sources provide an adequate basis to compile statistics.
- 5.2: Data sources are regularly assessed and validated.
- 5.3: Statistical techniques employed conform to sound statistical procedures, and are documented.

### **Statistical Outputs**

Available statistics meet users' needs. Education statistics comply with the international quality standards and serve the needs of international institutions, governments, research institutions, business concerns and the public generally. The important issues concern Relevance, Periodicity and timeliness, Consistency and Accessibility and clarity.

#### ***Principle 6: Periodicity and timeliness***

Education statistics are released following internationally accepted periodicity and in a timely manner.

Indicators:

- 6.1: Periodicity and timeliness follow dissemination standards.

#### ***Principle 7: Consistency***

Released education statistics are consistent within a dataset and over time, and with other major datasets.

Indicators:

- 7.1: Final statistics are consistent within a dataset.
- 7.2: Final statistics are consistent or reconcilable over a reasonable period of time.
- 7.3: Final statistics are consistent or reconcilable with those obtained through other surveys and data sources.

#### ***Principle 8: Accessibility and clarity***

Education statistics and metadata are easily available in a clear and understandable manner, and there is adequate user support.

Indicators:

- 8.1: Statistics are presented in a clear and understandable manner, forms of dissemination are adequate.
- 8.2: Up-to-date and pertinent metadata are made available.
- 8.3: Prompt and knowledgeable assistance support service to users is available.

## List of persons met and DQAF team members

### Persons met

Honourable Fauoa Maani	Minister of Education, Youth & Sports
Mr Talavai Iona	Permanent Secretary, Ministry of Education, Youth & Sports
Mr Neaki Letia	Director of Education, Ministry of Education, Youth & Sports
Mr Alapati Taupo ( <i>focal point for the mission</i> )	Project Officer TEMIS, Ministry of Education, Youth & Sports
Mr Peteli Paulo	Education Officer, Ministry of Education, Youth & Sports
Mrs Kaai Fanoiga	School Supervisor, Ministry of Education, Youth & Sports
Mrs Betty Vare*	School Supervisor, Ministry of Education, Youth & Sports
Mr Tofiga Tinilau	UNESCO Officer, Ministry of Education, Youth & Sports
Mrs Teimana Avantele*	Senior Education Officer ECCE, Ministry of Education, Youth & Sports
Mr Enele Epati*	Education Officer, Ministry of Education, Youth & Sports
Mr Lamese Saamu	Former TEMIS Statistics Officer, Ministry of Education, Youth & Sports
Mrs Leimaina Tepaa	Pre-School teachers representative, Pre-School Association
Mr Nemaia Paulo	In-Service Teacher Training Officer, Ministry of Education, Youth & Sports
Salai Sualo	Budget Adviser, Ministry of Finance and Economic Development
Kelena Tapa	Budget Adviser & Ag. Senior Budget Adviser, Ministry of Finance and Economic Development
Nuausala Nuausala	Senior Economic Adviser, Ministry of Finance and Economic Development
Fulimai Iuliano	Economic Adviser, Ministry of Finance and Economic Development
Fuaitai Fakavae	Economic Adviser, Ministry of Finance and Economic Development
Ms Grace Alapati	Government Statistician, Tuvalu Central Statistics Division

Mrs Taiane Apelu	HRM Officer, Office of the Prime Minister
Ms. Pamela Lysaght	Education Planning Advisor (PACTAM)
Mrs Petsio Lofola* Mrs Emily Kautu*	Tuvalu Family Health Association
Captain (acting)	Tuvalu Marine Training Institute (TMTI)
Head of School	Mareta Kabane Halo (MKH) Typing and Computing School
Head of School	Head teacher, Funafuti Book-keeping School
Deputy Campus Director	Tuvalu Campus University of the South Pacific (USP)
Mr Kima Pedro	Head Teacher, SDA Primary School
Mr Penehuro Hauma	Principal, Fetuvalu Secondary School, Funafuti
Mrs Malia Pisikeni	Head teacher, Nauti Primary School, Funafuti

Note: \* not personally interviewed but attended consultation meeting

### Team members

Mr Gregory Keeble	UIS Statistical Cluster Adviser, UNESCO Office for Pacific States
Mr. Scott Pontifex	SPC Regional EMIS Facility Project Leader, Education Quality and Assessment Programme
Mr. Michael Noa	SPC Monitoring and Evaluation Adviser, Education Quality and Assessment Programme

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