

RESTRICTED
TERMINAL REPORT
UNDP/RAS/86/058

PACIFIC ISLAND COUNTRIES:
COOK IS, FIJI, KIRIBATI,
MARSHALL IS, NIUE, SOLOMON IS,
TONGA, TUVALU, VANUATU,
WESTERN SAMOA

TESTING AND EXAMINATIONS IN THE
SOUTH PACIFIC REGION

PROJECT FINDINGS
AND RECOMMENDATIONS

SERIAL NO : FMR/SOPAC/92/02

UNITED NATIONS
DEVELOPMENT
PROGRAMME

UNITED NATIONS
EDUCATIONAL, SCIENTIFIC
AND
CULTURAL ORGANISATION

UNESCO OFFICE FOR THE PACIFIC STATES
APIA, WESTERN SAMOA

2 APRIL 1992

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COOK IS, FIJI, KIRIBATI,
MARSHALL IS, NIUE, SOLOMON IS,
TONGA, TUVALU, VANUATU,
WESTERN SAMOA

PACIFIC EDUCATIONAL MANAGEMENT

PROJECT FINDINGS
AND RECOMMENDATIONS

REPORT PREPARED FOR THE GOVERNMENTS OF THE PACIFIC
ISLAND COUNTRIES BY THE UNITED NATIONS
EDUCATIONAL, SCIENTIFIC AND CULTURAL
ORGANISATION (UNESCO) ACTING AS
EXECUTING AGENCY FOR THE UNITED
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UNITED NATIONS
EDUCATIONAL, SCIENTIFIC
AND
CULTURAL ORGANISATION

UNITED NATIONS
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2 APRIL 1992
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**RESTRICTED
TERMINAL REPORT
UNESCO/RAS/86/058**

**REGIONAL PROJECT OF THE
GOVERNMENTS OF COOK ISLANDS, FIJI,
KIRIBATI, SOLOMON ISLANDS,
TOKELAU, TONGA, TUVALU, VANUATU
AND WESTERN SAMOA.**

TESTING AND EXAMINATIONS IN THE SOUTH PACIFIC REGION

**PROJECT FINDINGS
AND RECOMMENDATIONS**

REPORT PREPARED BY

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PROJECT COORDINATOR RAS/86/058

**UNITED NATIONS
DEVELOPMENT
PROGRAMME**

**UNITED NATIONS
EDUCATIONAL, SCIENTIFIC
AND
CULTURAL ORGANISATION**

**SOUTH PACIFIC BOARD FOR EDUCATIONAL ASSESSMENT
P.O.BOX 2083, SUVA, FIJI.**

APRIL 1992.

TERMINAL REPORT

RAS/86/058 TESTING AND EXAMINATIONS IN THE
SOUTH PACIFIC REGION

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TERMINAL REPORT

TESTING AND EXAMINATIONS IN THE PACIFIC. - RAS/86/058

I DEVELOPMENT PROBLEM AND IMMEDIATE PROBLEM ATTACKED.

This project, which was sub-contracted to the South Pacific Board for Educational Assessment (SPBEA), was formulated to respond to a number of educational assessment problems faced by island states in the mid 1980's. The original participating countries were Cook Islands, Fiji, Kiribati, Solomon Islands, Tokelau, Tuvalu, Tonga and Western Samoa.

Before 1985 most South Pacific territories made use of examinations administered by larger, metropolitan countries. This was due to erstwhile colonial arrangements which persisted long after most Pacific island states had achieved political independence. The examinations, which attempted to certify educational achievements of students mainly at the end of secondary education, were (and are) regarded as highly important aspects of education systems.

This dependence upon overseas upper secondary school credentials, for the most part represented by the New Zealand School Certificate, University Entrance Examination and certificates of the Cambridge syndicate, was perceived by most of the countries in membership with SPBEA to be increasingly inappropriate given the independent nature of their political status. It not only represented educational dependence but gave the countries no say in what, effectively, was taught in their own schools. Accordingly the project sought to redress this imbalance by setting up national school certificate examination structures and regional credentials in countries where these were thought to be necessary. These developments became the first two objectives of the project respectively.

An area of additional concern to Pacific education was the cross-over point between primary and secondary schooling. Although access to secondary education was improving in most countries (universal secondary education is governed by economic rather than educational considerations), a considerable amount of doubt existed as to whether the most able students gained the restricted number of places available. In short the problem was one of the confidence in the validity and reliability of secondary selection examinations. The Project sought to remove the doubts about qualitative selection mechanisms by broadening the selection test content and improving the predictive properties of such tests.

Since the character of Pacific assessment instruments was largely determined at the time by metropolitan agencies, little attention had been given to the area of classroom diagnostic work. It was felt that since children were in school, by definition they were making 'progress' educationally. The Project proposed to introduce into primary systems a series of standardised test batteries at key points to provide teachers with diagnostic information about their students and, at the same time, give ministries of education annual data with which to monitor the quality of schooling provided.

The establishment of new formal examinations and test batteries could not proceed without a considerable amount of training in assessment techniques. In the mid 1980's there was a dearth of such expertise in Pacific island ministries. Accordingly the Project planned to train examiners at all levels, primary as well as secondary, so that any new structure when in place might be maintained by local expertise.

To assist such trained people set high quality examinations an item bank of test items was written into the Project as one of the objectives. This bank would contain examination questions graded and categorised by year and subject as well by their facility and discrimination values.

The overall Project was thus seen as having six major components as follows :-

1. National school certificate examinations (F5 level)
2. A Regional examination (F6 level)
3. Improved selection examinations
4. Standardised achievement tests
5. Training of personnel in test construction
6. A regional item bank of test questions.

Comment

When viewed together the objectives of the Project represented an attractive proposal which would have the two-fold effect of a) giving Pacific island countries control over their own credential systems and b) improving the relevance and quality of assessment mechanisms.

However, in retrospect, it might be said that the Project plan was drafted on the assumption that most if not all of the participating countries wished to develop their assessment procedures in the same way. During the five year length of the Project it has become apparent that this is by no means the case. Examples will be cited later in this report to suggest that island countries wish to deal with their assessment problems nationally if this is possible and, if not, only then is recourse made to regional solutions.

Of course any project design cannot anticipate in advance the likely development patterns of eight island states over a five year period: the educational permutations are virtually incalculable.

Having stated this hindsight conclusion, the Project nevertheless has held together well and, apart from taking into account the national/regional dichotomy rather more seriously, it is hard to see how the original design could have been improved upon.

The fact that the Project was sub-contracted to the SPBEA has no doubt helped in avoiding too much fragmentation especially at a time when educational assessment was undergoing rapid and quite radical changes throughout the world. It must also be said that this contractual work greatly assisted the SPBEA in formulating its own development plans during the period under review.

II.

OUTPUTS PRODUCED AND PROBLEMS ENCOUNTERED

- i) The original Project plan envisaged assessment units in each participating country administering national school certificate level examinations. This meant, in most cases, devising and putting in place replacements for the New Zealand School Certificate which ceased operating in the region in 1988.

Of course not all eight countries were in exactly the same situation. Some (Fiji, Cook Islands, Solomon Islands) already had examination units and operated national certificates of varying types around the school certificate level. As far as these countries were concerned this Project objective was seen as an opportunity to improve the quality of national credentials already in existence. The assistance largely took the form of test moderation (Cook Islands), test post-facto analysis (Solomon Islands) and examiner training (Fiji).

In the remaining four countries quite different, and perhaps more severe, problems existed. In the case of Tokelau the Project helped design and establish an entirely new examination at Form IV level characterised by the almost exclusive use of the vernacular. The establishment of such an assessment mechanism was clearly helped by utilising to the full one of the advantages of micro-states, i.e. the relative ease with which all interested parties could be brought together in one place to determine strategies and to implement decisions.

In the case of Kiribati, Tuvalu and Western Samoa the required output, i.e. national (F5) certificates, proved much more difficult to realise. A series of studies under the Project in the three countries reached the conclusion that a sharing of resources was the best approach to certificate establishment, at least in the short term interim period. Accordingly a plan was developed whereby several existing relevant subject papers would be 'borrowed' from New Zealand and these would be administered to students in the three countries together with papers devised regionally in English, History and Geography: the whole would be statistically 'tied' together by SPBEA who would also underwrite the credibility of the awards. The new certificates appeared in public, on time in 1989 and represented a good example of inter-state co-operation and a cost-effective response in an expensive environment.

This particular output (or more precisely outputs) should not be regarded as a finished piece of work. The new certificates, to be truly reflective of national curriculum objectives, need to be viewed as an ongoing, i.e. developmental, process.

Considerable work remains, outside the scope of the project, to speedily transfer all subject papers to the countries concerned and to ensure that the awards are valid i.e. that they clearly reflect the curriculum being followed in each country. No project funds were set aside for this ongoing developmental work.

- ii) Standing co-equal in importance with the establishment of national certificates is the Project output which we may call the 'Pacific Senior Secondary Certificate' (PSSC), a sixth form award which replaced the former New Zealand University Entrance Examination in 1989. This output is presently utilised by four of the participating countries viz:- Kiribati, Tonga, Solomon Islands and Western Samoa.

The overall plan for the PSSC was compiled after close consultation with participating countries. Several guidelines were formulated and subsequently put into effect. Among the more important specifications were the wishes that the PSSC should initially examine nine subjects, that it should be directly linked to the erstwhile University Entrance examination and that the qualification should be acceptable to tertiary institutions in the region and beyond.

Utilising project funds, a number of subject panels were arranged where the former nine University Entrance subject prescriptions were analysed by the four countries and modified according to national requirements. Examiners were contracted from New Zealand to set the papers with Pacific islanders working as assistant setters/moderators. All subsequent PSSC administration was done centrally at SPBEA where results were produced, again on schedule by the end of 1989.

Potential users of the PSSC award like the University of the South Pacific and organizations in New Zealand and Australia were kept informed of the work at every stage. As a consequence the resulting credential has been adopted by users with very little reservation.

Among the problems associated with the production of this complex output two may be singled out for comment at this stage.

- i) The huge geographical area has posed a number of difficulties, mainly from the standpoint of logistics; not least being the requirement of students to sit papers simultaneously in remote island schools as well as the administrative problem of the international dateline.
- ii) The project neither took into account the 'rolling' nature of the curriculum nor rapidly changing educational assessment patterns. (See below.)

In spite of the difficulties, the PSSC stands as perhaps the clearest example within the Project of substantial regional co-operation in a highly technical area.

- iii) In three of the participating countries (Kiribati, Tuvalu and the Solomon Islands), the Project attempted to address the severe problem of selection faced at the primary/secondary school crossover point. In these three countries universal secondary education has not yet been realised due largely to economic constraints. (Tuvalu however is rapidly approaching this desirable educational goal.) Although the Project could not, of course, deal with the need for selection, it attempted to make the selection process more equitable and to ensure that those students who were chosen for the scarce places in secondary schools were those best able to benefit from such education.

Before the Project's commencement, selection in Kiribati and Tuvalu was done on the basis of annual examinations in English Language and Mathematics. The Solomon Islands used a series of standardised papers, known locally as 'the Hicks Test'. In all cases the selection instruments were not curriculum derived. This resulted in schools coaching students in only English and Maths with the official curriculum remaining largely ignored in upper primary classes.

An important output of RAS/86/058 was the devising of more reliable selection instruments which, whilst selecting the more able students, reinforced the teaching of the official curriculum. Presently in all three countries new tests are constructed each year with content derived from official syllabuses. A good example of this output is the Kiribati Common Entrance Examination (CEE).

To fully judge the impact of these changes upon the systems concerned would require a separate study. The external signs however indicate that the school curriculum is being supported and that the more able students within the three cohorts are being selected.

- iv) The intention to produce, as an output of the Project, batteries of standardised achievement tests at key points in the education systems of participating countries, was laudable at the time of the Project's inception. Ideally such tests in the hands of trained people would have provided considerable amounts of diagnostic information for the classroom teacher and have given qualitative indicators to ministries of education for monitoring purposes on an annual basis.

In the event, standardised test work under the project has been mainly undertaken in the Solomon Islands with a smaller amount done in Fiji. The end of the project should see in existence a small battery of English and Maths tests in the Solomons called SISTA which have been devised for

use by primary teachers in Years 4, 5 & 6. This work has been going on almost continuously since the beginning of RAS/86/058 in 1987, but has suffered at times from the results of teacher strikes (twice, at times when national SISTA norming was planned) and cyclonic activity which meant postponement of widespread item trialling.

In Fiji, the Project is in the process of assisting with the expansion of the existing STAF battery by the inclusion of a parallel form of Elementary Science tests at the class 6 level. This work is expected to be complete by the end of the Project.

- v) Underpinning the structural outputs of the Project (i.e. assessment mechanisms) has been the ongoing training of island personnel in assessment techniques. This has ranged from formal sessions designed to put in place regional experts operating the new certificates to improving the quality of tests at the classroom level. Seminars, workshops and other devices have been utilised throughout the life of the Project to produce this output.

In some respects this output has been the most rewarding of all since it has brought project staff into close contact with Pacific educators at all levels and in all subject disciplines. Not the least of its benefits has been bringing an awareness to people of the complexities of educational assessment per se and contributing to a desire in the countries to solve accreditation problems either nationally or in concert as a region.

This project output has produced indirect evidence that the quality of classroom assessment is presently not at a very high level. As a consequence, participating governments and donor agencies have been alerted to some of the chief defects. (e.g. There is a severe problem apparent in many classrooms related to the proper formulation of summative assessments. The problem has been identified through RAS/86/058 and, hopefully, will be dealt with in other Projects designed with that end in mind.)

- vi) The final stated output has taken the form of an embryonic item bank of test questions. The modus operandi here has been the analysis of a variety of test items (questions) from several examinations in use in the region for possible inclusion in an item bank. These items, if found suitable from the standpoints of general utility, acceptable facility and discrimination levels and curriculum stability, have been classified and entered into a custom built, computer-based system known as RIB (Regional Item Bank).

Many hundreds of these items have been collected and classified already while many others remain yet to be classified: the classification and entry is a time consuming process.

By the end of the Project the basis of a comprehensive collection will be in place.

It is intended that these classified items will be used by regional and national examiners when assembling annual examination papers. To make this possible a system of dissemination has been devised based on the establishment of replicated data bases in all participating countries and the periodic updating of those bases by disk or modem transfer.

e 7 The work under this Project head has been slow compared with other project areas. This is due to the great time demands it makes on project staff working to formal examination deadlines, the rapidly changing nature of the curriculum in island states and the not inconsiderable technical difficulties of item dissemination.

III OBJECTIVES ACHIEVED OR LIKELY TO BE ACHIEVED.

All six immediate objectives of the project have been differentiated at the national level in the participating countries: this was necessary in order to accommodate a variety of national priorities.

i) Immediate Objective No. 1.

To establish national school certificate (Form V) examinations.

A working structure for new national examinations at this level has been put in place in participating countries viz: Kiribati, Tuvalu and Western Samoa. The scheme allows for the sharing of scarce resources in terms of paper utilisation, marking and statistical processing. It also allows for the gradual emergence of independent national examinations as and when the countries are ready: such readiness is largely dependent upon the development of national curricula and related matters.

Under this particular objective the Project has been able to assist Tonga establish its own school certificate and refine procedures in the long established school certificate operating in the Solomon Islands.

ii) Immediate Objective No. 2.

To establish a regional certificate (Form VI) examination available to interested countries.

A full certificate offering nine subjects and known as the Pacific Senior Secondary Certificate (PSSC) has been established under the Project. The examination is currently taken by four participating countries viz: Kiribati, Solomon Islands, Tonga and Western Samoa.

Examinable content for each subject, together with test paper format is described in nine separate prescription documents. These have been circulated to all schools in addition to the set of PSSC Regulations upon which the overall Certificate is based.

The subjects are examined by interim contracted experts who, in addition to setting the test questions, are also engaged in training island personnel.

After students in participating countries have answered the examination papers, the scripts are marked in a variety of locations by both external consultants and local teachers. The results are then processed centrally in Suva and certificates, graded on a 9 point scale, are issued to candidates.

Examples of prescription documents, regulations, test papers and certificates are given in Appendices B, C and D.

iii) Immediate Objective No. 3.

To improve the predictive value of existing secondary school selection examinations.

The achievement of this objective, which was predominantly the concern of three countries, required the establishing of entirely new selection mechanisms in Solomon Islands and a refinement to the secondary entrance examination in Tuvalu and Kiribati.

A new year 6 curriculum based examination in the Solomon Islands (Solomon Islands Secondary Entrance - SISE) has been created under the Project. The examination comprises new papers each year in Mathematics, English Language and a Verbal Aptitude Test. (The latter will be replaced by a General Studies paper when the curriculum has stabilised.) This is, in the judgement of many educators, by far the most important examination in the country since it effectively selects only a small proportion (27%) of the annual cohort for available secondary places. The examination is now administered in its entirety by Solomon Islands personnel. Initial estimates of its predictive validity are high, with considerably fewer complaints from secondary schools being received concerning the calibre of selected students.

In Kiribati during the life of the Project, and assisted by Project resources, the Kiribati Common Entrance Examination has been re-designed. It resembles the Solomons format with the exception that Kiribati Language is examined with Mathematics and English.

In Tuvalu considerable attention has been given under the Project to improving the quality of the Motufoua Entrance Examination in English Language and Mathematics through the stringent moderation of draft papers and a comprehensive post-facto analysis of test results.

There can be no doubt that selection procedures in all three countries have been radically altered for the better under the Project. It is too early at this stage to produce statistical verifiers of this statement since it is necessary to conduct studies of cohort progressions during the five year period of secondary schooling. All external signs however are highly encouraging, not the least being the generally high level of public acceptance for the selection tests (a volatile area in all three countries).

iv) **Immediate Objective No. 4.**

To develop batteries of national standardised achievement tests for the principle core subjects for diagnostic and evaluative purposes.

By the end of the project a new battery of standardised achievement tests, known as SISTA, will be ready for multiple copying in the Solomon Islands. The battery is made up of tests in English and Mathematics, aimed at classes 4, 5 and 6 and comes in parallel forms, x+y. (i.e. twelve separate tests in all.) The remaining technical work to be done consists of calculating national norms for each of the tests and other statistical exercises such as determining actual reliability co-efficients for elements within the battery.

It should be noted that no provision was made under the Project for either the printing costs of the test booklets or the expenses associated with in-service training of relevant teachers.

In Fiji the expansion of the STAF battery to include parallel tests of Elementary Science is at the pre-norming stage. Tests have been produced, trialled and modified as a consequence of school derived data. The remaining work is to norm the two tests nationally in March 1992 and to incorporate the new tests into the much larger battery already in existence.

In retrospect, the original conception of improving the quality of primary education by making batteries of standardised test material available to teachers, was perfectly sound but somewhat over-ambitious. The sheer volume of work involved in the production of test material, including as it does, extensive travelling and constant refinement/analysis of test data, made the achievement of this objective only partially successful. Such work, on reflection, would probably warrant the attention of a single project itself. Nevertheless, what has been achieved should make some impact on the countries concerned, provided the necessary in-servicing of teachers and administrators goes ahead.

v) **Immediate Objective No. 5.**

To provide trained in-country and regional examinations personnel competent to construct, moderate, monitor and analyse evaluation instruments which are relevant to specific national situations.

To achieve this general objective of a better trained cadre of regional assessment personnel the Project approached the issue by relating all training work to the other more

concrete, objectives of the Project. In short, expertise has been passed on to national educators to enable them to operate national and regional examinations.

An analysis of the Projects records has shown that since March 1987 no fewer than one hundred and twelve (112) distinct assessment related workshops and seminars have been conducted under the broad aegis of RAS/86/058. Given an average attendance at such workshops of twenty participants, the Project has trained over two thousand people (2000) in the course of its life. If anything these figures are probably on the conservative side.

e 7 This achievement is exemplified by a number of examination units staffed by people capable of administering national certificates and contributing to in-country training of their colleagues.

The expertise acquired by people, in varying degrees, ranges from compiling technically sound test questions, through paper assembly, test conducting, marking, grading and results analysis to overall examinations administration.

Nor has the impact of modern computer technology been overlooked. The training work throughout its execution has featured the use by examiners of computer data to analyse the statistical properties of test material, the manipulation of the data themselves and the general procedures associated with all examinations. (Appendix E gives details of computer programs created under the Project.)

Reference has been made above to the relatively poor quality of classroom assessment. Although some peripheral attention has been given to this area in terms of training personnel, it must be stated that the Project was focused on national/regional examinations and not on classroom testing. Large numbers of classroom teachers still remain in need of basic assessment training.

vi) Immediate Objective No. 6.

To establish a regional item bank of examination questions for the principal core subjects, graded and categorized by year and subject, together with related facility and discrimination indices.

Almost by definition, this objective has to be regarded as having an ongoing character. Because the curriculum in all countries is in a continuing state of change, reflecting advances in knowledge and fluctuating government priorities, the collection of useable test questions in an item bank must also be updated and refined continuously.

The Project has established a computer item bank known as RIB (Regional Item Bank). Its basic use is to provide examiners at a variety of levels with the ability to choose for their test papers items which have 'proved' themselves in previous assessment contexts. (Thus an examiner in, say, Maths at Form V level, would not have to freshly create an exam question to test quadratic equations, but could select such a question from the bank, in the knowledge that the item is 'good'.)

To date over a thousand items have been collected from examination units around the region, classified by subject, level, difficulty and discrimination indices and entered into the RIB storage facility. Many more items are to hand awaiting the time consuming task of analysis and entry.

By the end of RAS/86/058 accessing should be possible for regional assessment personnel through a replicated bank in their own country which is kept up to date by regular data transfer from SPBEA. It is envisaged that all participating countries will make use of this aid to professional test construction.

FINDINGS AND LESSONS LEARNED

The original development objective of RAS/86/058 had three related elements. It was to assist participating governments

- i) achieve a maximum degree of autonomy in assessment aspects of their education systems through
- ii) replacing the dominance of metropolitan examinations, including expatriate personnel and
- iii) putting in place national/regional assessment structures.

From the standpoint of the Co-ordinator the overall impact of the Project upon educational assessment in the Pacific has been considerable. Perhaps the most noticeable 'proof' of this assertion is the confidence which has grown up in participating ministries of their ability to conceive, mount and administer assessment systems of their own, without constantly looking 'overseas' for models. In a phrase, 'local is best'. Although examination systems in the region are no longer overwhelmingly dominated by those used by Pacific rim territories, the complete removal of such influence has not yet occurred. (In some respects it would not be educationally desirable to have an entirely closed system.) This is, of course, because examinations and assessment represent but one area in the complex process called 'education'. Equally important spheres like the curriculum, teacher education and educational philosophies have not necessarily made the same progress as assessment over the last five years. Until these and other aspects of education, including its financing, have been 'localised' it is premature to speak of complete educational autonomy. Nevertheless the localisation of assessment achieved under the Project has been very marked and in many respects has exceeded all expectations.

The structures now in place at the Form Six level (PSSC), Form Five level (National Certificates) and in the area of selection examinations (Year 6/7) represent starting points only. The Project has put them in place according to a strict time frame, but (and it is a big 'but'), these structures are not immutable. It may well be that over the next decade the participating governments may move towards greater or lesser regional co-operation. In the former case the national certificates may become regional and in the latter the regional award may develop into several national awards. Only time and the responses of the education systems to societal needs will determine future trends.

Again the assessment structures now in place will need constant development to survive, including forging closer relationships between the stated objectives of curricula and acceptable forms of educational achievement reporting to the public. The pace of educational change in the region is, at times, too rapid for comfort.

What the Project has done, at the lowest level, is to create an awareness of these changes and hopefully, has equipped assessment personnel to adapt and adjust to such innovation.

During the life of RAS/86/058 strong links have been maintained with colleagues from a variety of agencies working in Pacific education. Our 'sister' Project RAS/86/053 'Pacific Educational Management' is an example of clear linkage. Both Projects have come together on a number of occasions for reviewing each other's progress as well as some utilisation of joint consultants. The contact point, of course, is that the personnel of the management project will often have to administer a good deal of the assessment work in their schools.

Another area of work performed in close contact with both RAS/86/053 and RAS/86/058 was a recent study of literacy levels in Pacific countries (PILL). This valuable study was greatly assisted by the facilities already in existence under both Projects.

Other agencies which from time to time have helped amplify and enhance the work of the Project have been the aid programmes of Australia, New Zealand, the United Kingdom and the Commonwealth Fund for Technical Co-operation (CFTC), the latter providing funds for individual personnel attachments with assessment objectives. The Project has thus been very well received and supported by bodies charged with the task of improving education in the Pacific region.

An outstanding 'finding' of this Project has been the very great interest shown by participating governments in the application of computer technology to examinations. This level of interest was only marginally recognised at the time of the Project's inception. It grew as a consequence of recognising the speed, accuracy and utility of computer data generated by such Project-stimulated programs as TITAN and ATLAS. From a point in 1987 where hardly a single system used computer data the situation has now been reached where all participating ministries possess and utilise such programs regularly and with great effect. The scope for future development in this area is considerable (see below).

In assessing the overall value of the Project some comment has to be made concerning its finances. Whilst the overall allocation of funds for the work has been adequate in terms of structural components (i.e. the framework of examinations), at times the activities were in danger of being curtailed due to the slowness of funds arriving. Additionally no funds were provided for the completion of the standardised test work (SISTA & STAF) i.e. for printing test booklets, marking templates, teacher's guides and, above all, adequate teachers in-service courses to maximise the impact of the tests on primary systems. Similarly, to ensure the necessary growth of truly autonomous national certificates and the regional award, funds might have been allocated to meet initial development costs.

(The 'establishment' of the structures needs to be clearly distinguished from ongoing 'development'.) Without such funding at best the new structures could easily atrophy; at worst they could disintegrate entirely through lack of financial attention.

At no time during the execution of the Project were budget allocations exceeded and all interim accounts were presented on time with virtually no follow-up queries.

The relative cost/benefit relationship indicates that the Project produced substantial benefits for a relatively low cost. One factor which helped bring about this desirable state was that the work was sub-contracted to SPBEA. This actually meant that SPBEA core funds were spent on providing secretariat personnel and support for Project work. This was acceptable while the Project work was closely related to the core work of the Board. It could not be taken as a precedent in the event of a Project being quite different from and separate from core work. In that event, either additional personnel would have to be hired, or SPBEA secretariat time would have to be charged to the Project. In the case of RAS/86/058 there was a consequent 'saving' of co-ordinator expenses and no wastage incurred by the main consultants having to 'familiarise' themselves with their work context. At the same time the general work of SPBEA was considerably enhanced by being able to blend its own activities into those of the Project with mutually beneficial consequences. There may indeed be a valuable lesson here for future Project execution.

Finally, the Project work, bringing the sub contractors into close professional contact with several Pacific education systems, leaves the clear impression that 'regionalism' in the sense of educational co-operation, runs a very poor second to 'nationalism'. Over and over again, in spite of many arguments to the contrary (economics of scale, 'Pacific Way', greater global impact etc), the island states involved with the Project prefer to take a national stance in their assessment progress rather than a regional position. The creation of national certificates at Form Five level is but one example of this phenomenon. The regional PSSC should thus be seen as running against this general trend. For that reason alone its future - without further development - is tenuous.

1. Project Follow-up:

- a) That a suitable Project eventually be formulated to address the significant 'gap' in qualitative information between Primary Year 1 and Primary Year 6 in most countries. This might entail amplifying the Standardised Test work accomplished under RAS/86/058.
- b) That a suitable study be mounted to follow through the respective cohorts chosen for secondary schooling in Kiribati, Tuvalu and the Solomon Islands. This would evaluate the validity and reliability of the selection processes now in situ as a result of RAS/86/058.
- c) Recognising the relative fragility of the new examinations structures in the participating countries of this Project, that funding be available from time to time for developmental purposes since the need is unlikely to be addressed by the countries concerned.
- d) That a new Project proposal to address the problem of poor classroom assessment and under utilised examinations data be supported.
- e) That the further development of assessment related computer work in Pacific countries be supported: of particular importance would be the ongoing refinements of TITAN, ATLAS & RIB.



2. Archives:

That documentary material relating to RAS/86/058 be deposited at the UNESCO office for the Pacific states and be readily available for the purposes of research and long-term evaluation.



3. Accounts:

- i) That the final series of accounts for this Project be presented upon the approval of this report, and,
- ii) That the second payment of the final year of the Project be made available to allow remaining activities to be completed.

RAS/86/058 - PROJECT PARTICIPATION 1987 - 91

| PROJECT WORK AREA | RELATED PROJECT OBJECTIVE | PARTICIPATION LEVEL | | | | | | | | |
|--|---------------------------|-------------------------------|---|-----|-----|-----|-----|---|-----|-----|
| | | F = FULL P = PARTIAL N = NONE | | | | | | | | |
| | | CKI | FIJ | KIR | SOL | TOK | TON | TUV | VAN | SAM |
| 1. Agreement by countries to take part in Project and commit appropriate resources | - | F | F | F | F | F | F | F | * | F |
| 2. Establishment/improvement of national F4/F5 certificates | ONE | P | P | F | P | F | P | F | P | F |
| 3. Establishment of PSSC Regional F6 examination | TWO | N |  | F | F | N | F | N | N | F |
| 4. Establishment/improvement of selection exams. | THREE | N | P | F | F | N | P | P | P | P |
| 5. Training of exam unit staff | FOUR | F | P | F | F | F | F |  | P | P |
| 6. Training of examiners at all levels | FOUR | F | F | F | F | F | F | P | P | P |
| 7. Participation in Regional Examination Seminars | FOUR | F | F | F | F | F | F | F | P | F |
| 8. Standardised Test Developments | FIVE | P | P | N | F | N | N | N | N | N |
| 9. Individual, content - specific attachments | ALL | F | F | F | F | F | F | F | F | F |
| 10. Utilisation of RIB (anticipated level) | SIX | P | P | F | F | F | P | F | P | P |
| 11. Computer - specific training | ALL | F | F | F | F | F | F | P | F | F |
| 12. Modem installation (9/91) | ALL | F | F | N | F | N | F | N | F | F |
| 13. TITAN/ATLAS usage | ALL | F | F | P | F | F | F | F | F | F |

KEY:-

- * Vanuatu joined the project in 1989
-  Tuvalu's exam unit awaits establishment.
-  Fiji utilises its own FSLC examination.

CKI - COOK ISLANDS
 FIJ - FIJI
 KIR - KIRIBATI
 SOL - SOLOMON ISLANDS
 TOK - TOKELAU
 TON - TONGA
 TUV - TUVALU
 VAN - VANUATU
 SAM - WESTERN SAMOA



SOUTH PACIFIC BOARD FOR EDUCATIONAL ASSESSMENT

Pacific Senior Secondary Certificate

This is to certify that

has completed a course of instruction in the following subject, and attained the grade listed.

SUBJECT: _____ GRADE: _____

SAMPLE

Year of Award

Director (SPBEA)

A description of the award is given on the back of this certificate.

Ministry of Education



KIRIBATI

National Certificate

This is to certify that

[Redacted Name]

has been awarded the grade(s) shown in the following subject(s) of the Kiribati National Certificate Examination

SUBJECT

GRADE

SAMPLE

YEAR OF AWARD

1990

King George V/ES School

A description of the award is printed on the back of this certificate

Permanent Secretary
for Education

APPENDIX B
DRAFT TERMINAL REPORT PAS/86/05B



Department of Education
WESTERN SAMOA

School Certificate

This is to certify that

[Redacted box]

has been awarded the grade(s) shown in the following
subject(s) of the School Certificate Examination

SUBJECT:

GRADE:

SAMPLE

YEAR OF AWARD

Director of Education

A description of the award is printed on the back of this certificate.

APPENDIX B
DRAFT TERMINAL REPORT RAS/86/058

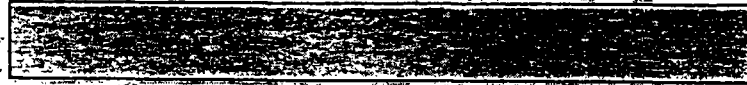
Ministry of Health, Education
and Community Affairs



TUVALU

School Certificate

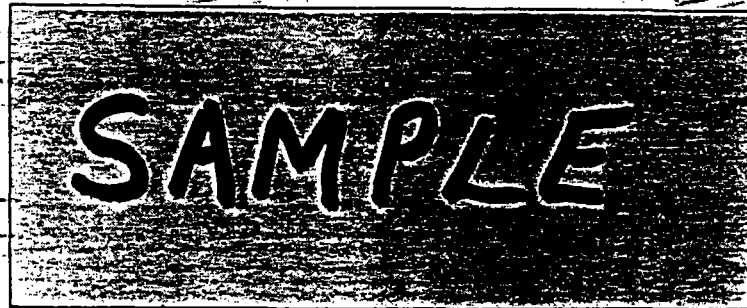
This is to certify that



has been awarded the grade(s) shown in the following
subject(s) of the School Certificate Examination

SUBJECT

GRADE



YEAR OF AWARD

Secretary for Health, Education
and Community Affairs

A description of the award is printed on the back of this certificate

APPENDIX B
DRAFT TERMINAL REPORT RAS/86/05

**SOUTH PACIFIC BOARD
FOR
EDUCATIONAL ASSESSMENT**



**PACIFIC SENIOR SECONDARY
CERTIFICATE**

**ECONOMICS
PRESCRIPTION**

PACIFIC SENIOR SECONDARY CERTIFICATE

ECONOMICS PRESCRIPTION

PREAMBLE

This is a one year course designed for students who are studying for their Pacific Senior Secondary Certificate in ECONOMICS. There are no pre-requisites for this course. This prescription replaces the New Zealand Form Six Examination previously known as University Entrance.

The prescription comprises five sections. The aims of this course are for students to be able to illustrate an understanding of the economic principles and concepts in these sections by being able to apply their knowledge to their own Pacific Island economy and to contrast levels of economic development to those in the New Zealand economy or another neighbouring Pacific Island economy. This course is also designed to build a foundation for further studies in economics.

Specific Objectives :

Candidates will be expected to demonstrate an understanding of the course through mastery of the content and a range of skills. Students should be able to: understand commonly used economic terminology; appreciate the part market forces play in a Pacific Island economy; describe the role of government in their economy; understand the links their countries have with the rest of the world; interpret basic economic data from a variety of sources; show an interest in current economic issues and their social implications; demonstrate higher level skills such as being able to draw tenable conclusions based on economic data, to evaluate an economic situation and to understand the implications of economic decisions that have been made.

PRESCRIPTION

SECTION 1 : ECONOMIC PRINCIPLES AND CONCEPTS (25 marks)

- What is Economics ?
- definition
 - purpose of studying Economics
- Basic Concepts
- scarcity: limited resources and unlimited wants
 - choice
 - opportunity costs
 - specialisation
 - interdependence
 - production
 - economies of scale
 - diminishing returns
 - distribution
 - exchange
 - markets
 - welfare

The Economic Problem - What, How and for Whom ?

Economic Systems - traditional, free market, planned and mixed

Circular Flows in a Mixed Economy

Economic Units: households, firms, non-profit organisations, government.

Flows; consumption; goods and services; factors of production, factor incomes.

Expanded models of the circular flow diagram to include:

- the financial sector (savings and investment).
- international trade (exports and imports).

Markets and Prices

- the concept of the market
- the goods and factor markets
- derived and final demand and factors which influence demand for goods and services
- supply and factors which influence the supply of goods and services
- equilibrium price; conditions that cause shifts of the curve and shifts along the curve
- the influence of competition on market prices;
 - . perfect markets - price takers
 - . monopolies - price setters

Types of production; - primary, secondary and tertiary, and their relative importance in an economy.

Factors of production

- factors which determine the supply and demand of land, labour, capital and entrepreneurship.

Factor incomes

- the pricing of the factors of production and the role of government and trade unions on determining their prices.
- the ratio of output to input resources.
- increasing productivity through technological change, improved management, increased efficiency and improved allocation of resources.

The role of capital

- types of capital
- capital formation
- depreciation
- sources of new capital

Measurement of production

- Gross Domestic Produce (GDP)

- Gross National Income (GNI)
- Gross National Expenditure (GNE)
- GDP as a measure of economic achievement and welfare.

SECTION 2 : THE FINANCIAL SECTOR (20 marks)

- Money
- qualities
 - functions
 - near money
 - liquidity
 - legal tender
 - money supply; M1, M2, M3

The Quantity Theory of Money

- $MV=PT$
- definition and the relationships in this equation.

The roles of these banks in a mixed economy

- Central Bank (Reserve Bank)
- Trading banks
- other financial institutions

Borrowing

- mortgages
- term loans
- hire purchase
- overdrafts

Savings

- term deposits
- superannuation
- life assurance
- stocks and shares

Interest rates

- reward for saving
- cost of borrowing
- factors which determine interest rates including: risk, time, government, the supply and demand for money.

Causes of changes in the money supply

- credit creation
- a balance of payments surplus or deficit
- a government budget surplus or deficit

Inflation

- causes including: changes in the money supply, demand pull, cost push, government deficit spending, imported inflation, inflationary expectations.
- measurement of inflation through the Consumer Price Index or Retail Price Index.
- the effects of inflation on the business and household sectors.

Monetary Policy

- definition of Monetary Policy
- Monetary Policy measures; Reserve Asset Ratio (Cash Reserve Ratio); Government Stock Ratio (Public Sector Security Ratio); controls on interest rates; moral suasion; hire purchase regulations and lending priorities; open market operations.
- an understanding of the expansionary and contractionary effects of these measures on an economy.

SECTION 3 : INTERNATIONAL TRADE AND PAYMENTS (20 marks)

Trade Theories

- international trade as distinct from domestic trade.
- specialisation, absolute and comparative advantage, gains from trade and terms of trade.
- general patterns of international trade in the South Pacific (students should be able to demonstrate an understanding of the major trading partners, the main commodities traded and recent trends and changes in trading patterns for any one Pacific Island economy).

Marketing agencies and boards

- their role in promoting international trade.

Foreign Exchange

- exchange rates
- the difference between a floating and a managed exchange rate.
- devaluation/revaluation and depreciation/appreciation, and their effects on international trade.

Free Trade and Protectionism

- the difference between free trade and protectionism
- tariff and non-tariff barriers to trade
- the advantages and disadvantages of protectionism with particular reference to examples from any one Pacific Island economy.
- international and regional trade agreements, multilateral and bilateral, e.g. GATT, CER, EEC, SPATECA, SPEC.

Balance of Payments

- Current Account; visible and invisible trade, current account surplus and deficit.
- Capital Account; receipts including borrowing, aid, foreign investment and remittances. Payments including profit, interest and principal, dividends.

- the effects of a Current Account surplus or deficit on the economy.
- policies and measures a government may use to influence the Balance of Payments.
- the role of the IMF
- the role of overseas reserves.

(Students should be able to relate the contents of this section on the Balance of Payments to the trends in any ONE Pacific Island Economy Over the last five years).

SECTION 4 : ECONOMIC FUNCTIONS OF GOVERNMENT (25 marks)

- | | |
|---------------------|---|
| Government | <ul style="list-style-type: none"> - collective goods and services - private and social costs and benefits - local and central government - the general functions of government - the aims of a government in a mixed economy, e.g., resource management, price stability and economic growth. - the principle of user pays versus free goods. |
| Government Finances | <ul style="list-style-type: none"> - major sources of revenue, direct and indirect taxation, charges for goods and services and aid. - major areas of expenditure current and capital. - the importance of government budgets - budget deficits/surpluses; the effects of a budget surplus/deficit on a mixed economy - government borrowing; internal, external, national debt. |
| Government roles | <ul style="list-style-type: none"> - controls and regulations on households and businesses. - state owned and partially owned enterprises. - the reasons why a government might wish to intervene in an economy. - the degree of intervention in a mixed economy. |
| Fiscal Policy | <ul style="list-style-type: none"> - definition of fiscal policy - the principles of taxation - systems of taxation - fiscal policy measures and their expansionary and contractionary effects on the economy. |

SECTION 5 : ECONOMIC DEVELOPMENT (10 marks)

Students should be able to apply the content of this section to any TWO Pacific Island economies so that they can compare levels of economic development.

The importance of each of these factors in determining levels of economic development:

- endowment of natural resources
- population
- education
- labour force in primary, secondary and tertiary sectors
- composition of exports and imports
- real GDP per head

Foreign aid and Investment

- the importance of foreign aid and investment in developing an economy
- advantages and disadvantages of foreign aid and investment
- bilateral and multilateral aid organisations and institutions which contribute to foreign aid and investment.

THE EXAMINATION

The prescription will be assessed externally in one three hour paper divided into three sections;

| | | | |
|-----------|---|-----------------|-------|
| Section A | : | Multiple Choice | (20%) |
| Section B | : | Problems | (60%) |
| Section C | : | Essays | (20%) |

SOUTH PACIFIC BOARD FOR EDUCATIONAL ASSESSMENT

(Incorporating amendment Number 1,
Amendment Date 01/11/89)

PACIFIC SENIOR SECONDARY CERTIFICATE REGULATIONS 1988

INTRODUCTION

1. Authority, Title and Commencement Date
2. Definition of Terms
3. Endorsement

PART I : THE CERTIFICATE

4. Power and Scope of the Examination
5. Subjects of the Examination
6. Eligibility to sit the examination
7. Entry for the Examination
8. Coursework Requirements
9. Results of the Examination
10. The Certificate
11. Board Publications

PART II : THE CONDUCT OF THE EXAMINATION

12. The Examination Papers
13. Examination Supervision
14. Reports of Examiners
15. Breaches of the Rules
16. Special Examination Conditions
17. Aegrotat and Compassionate Consideration
18. Recount Applications
19. Retention of Scripts

COMPUTING SYSTEM DEVELOPMENTS DURING RAS/86/058

1. The Regional Item Bank (RIB)

The Regional Item Bank was developed to fulfil a need for storing good items for regional examiners. The original contract was taken by a local expatriate systems programmer who, unfortunately, had to leave the country following the political disturbances in Fiji during 1987. The contract was however completed and it has been possible to continue to build the bank into a useful source of items to assist examiners in the compilation of their examinations.

RIB works best in conjunction with an item analysis programme called TITAN also successfully developed under RAS/86/085. Appropriate items, once identified, are classified, and stored in the bank for later retrieval. The aim has been to identify items which have a strong "island" flavour but which can be transplanted from one country paper to another. To date this aspect of the bank has worked well, and initial use has been made of it by various country examiners: this utilisation is expected to increase.

The RIB system was written in REVELATION for stand-alone PC's. Work has moved rapidly since 1989 to extend its computing power, and it is now associated with an in-house Novell network, and an external Pacific wide modem-linked communications network. This makes it possible to make the bank available to remote users in the future. With this in mind, SPBEA are currently offering a contract to seek a programmer who can bring the RIB system up-to-date, using the Board's standard programming software of Clipper 5.1 and putting it on-line to remote users who wish to dial in.

2. Test Item Analysis (TITAN)

This computer system was written by a short-term computer specialist in response to the need to provide examiners with an efficient and reliable analysis tool. The system has developed significantly since its inception in 1987. Written in Clipper, it is now maintained in Suva, and a number of Project training courses have been run to train member country assessment officers in its use. All countries have the latest version of the system, and are kept up-to-date either by modem links or by associated visits.

TITAN has expanded greatly during this period of time to allow for subset analysis, with aggregation of subsets for global analysis; marker accuracy analysis; option analysis; and graphical presentation of some statistical features. It has been used to assist with the standardisation of country standardised tests in the Solomon Islands and Cook Islands; to analyse the performance of selection examinations in the Solomon Islands and Kiribati; and to determine examination statistical data and check on marker accuracy in regional and national examinations such as the Pacific Senior Secondary Examination, and National Certificate examinations in Kiribati, Tuvalu and Western Samoa.

There are current plans to develop TITAN further, if funds materialise. It is partly written in BASIC and needs to be rewritten in Clipper 5.1. Additional features to assist examination authorities are always being suggested, and some of these need to be taken on and implemented.

3. Examination Processing (ATLAS- Assessment of Teaching & Learning Administration System)

ATLAS was developed to have an effective computer system to run the Pacific Senior Secondary Certificate- (PSSC). Written in Clipper 5.1, the system has recently been modified to run on a Novell network.

Examinations that currently run under ATLAS are the PSSC exam plus three national certificates in Kiribati, Western Samoa and Tuvalu. ATLAS controls the student database, mark entry, mark processing, grading, reporting and certificate production.

Following two regional training courses, most Project countries are now using modified versions of ATLAS to run their own examinations. In 1991 the following examinations will use ATLAS

| | |
|------------------|--|
| Solomon Islands- | Secondary Entrance examination Form 3 examination Solomon Islands School Certificate examination |
| Vanuatu- | Year 6 examination Year 10 examination |
| SPBEA- | PSSC Kiribati National Certificate Tuvalu School Certificate Western Samoa School Certificate |
| Kiribati | Common Entrance (Year 7) examination Common Entrance (Year 9) examination |
| Tonga | Secondary Entrance Examination Tonga School Certificate Tonga Form 7 |
| Western Samoa | Year 8 Examination Year 11 Examination |
| Tokelau | Tokelau Form 5 Certificate |
| Cook Islands | Cook Islands School Certificate Grade 6 Examination |

All countries have different demands, hence ATLAS exists in many modified forms. All countries expect the system to run without problems. To provide the necessary technical support, modems have been installed in Solomon Islands, Vanuatu, Fiji, Tonga, Western Samoa and Cook Islands. By this means a response can be given to problems immediately they occur. The usual technique is to maintain identical systems on the SPBEA computers. When problems occur, the remote files are packed and transported to the SPBEA computers where they can be studied to identify problems. Modified programmes and/or files are then transported back again.

The modems are a mixture of internal and external 2400 baud devices that operate under pc ANYWHERE Version 4 software. All countries must install individual ISD telephone lines to link directly with the Board. The modems have all been purchased from a special UNESCO grant of US\$5000 made available in late 1990.

4. Other Developments

With SPBEA taking on responsibility for one regional examination and assisting with three national examinations, it was necessary during this period to purchase desk-top publishing hardware and software. A scanner and an HP LaserJet printer were purchased along with Ventura Publisher software using extra-Project budgetary funds from Australia. This exercise takes up extensive office time during the second half of each examination cycle. It has necessitated the training of in-house operators, but a number of regional personnel have expressed an interest in getting into this field of expertise. Already one country, Cook Islands, has been given assistance in this area by Board officers.

REPORT ON THE PACIFIC SENIOR SECONDARY CERTIFICATE 1990

INTRODUCTION

Following the successful introduction of the Pacific Senior examination in 1989, SPBEA made one major change concerning the way the certificate should be processed in 1990. This was that as far as the base marks were concerned, there was no longer a need to link these to historical NZ scores as the grade distribution itself could be used to provide a linkage. Therefore the base marks in 1990 were to be distributed about a mean of 50 rather than a mean of 40. This would then have the effect of centring the grade 5 roughly in the centre of the mark range.

Since this is the second year of the examination, where relevant, 1990 data is contrasted with 1989 data

RESULTS OF THE 1990 EXAMINATION

1. Student Enrolments

1249 students enrolled for the 1990 examination compared to 1222 enrolling in 1989.

Subject enrolments (bracketed) and total examination enrolments are given in Table 1. The unbracketed numbers represent those students who presented themselves for the examination.

| Subject | 1989 | | 1990 | |
|--------------|-------------------|---------------|-------------------|---------------|
| | Candidate Numbers | | Candidate Numbers | |
| Accounting | 406 | (416) | 418 | (429) |
| Biology | 599 | (618) | 660 | (672) |
| Chemistry | 503 | (509) | 489 | (493) |
| Economics | 307 | (311) | 376 | (381) |
| English | 1198 | (1210) | 1239 | (1250) |
| Geography | 515 | (536) | 594 | (603) |
| History | 285 | (292) | 296 | (300) |
| Mathematics | 1050 | (1064) | 1073 | (1096) |
| Physics | 540 | (546) | 506 | (517) |
| Total | 5403 | (5502) | 5651 | (5741) |

Table 1

Enrolment numbers are taken at the closing date for the examination (October 1st).

There was a small increase in the number of enrolments and this was reflected in all subjects except Chemistry and Physics which fell slightly.

2. School Enrolments

One new school joined the examination in 1990, namely Catholic College Teoraereki from Kiribati. School enrolments for 1990 are given in Table 2. One school from Western Samoa, Church School's College did not enrol any students in 1990.

| Country | School | Enrolment |
|-----------------|----------------------------|-----------|
| Kiribati | King George V/ EB School | 34 |
| | Catholic College | 10 |
| | | 44 |
| Solomon Islands | Beitikama High School | 22 |
| | King George VI School | 64 |
| | Waimapuru Nat. Sec. School | 31 |
| | | 117 |
| Tonga | Api Fo'ou College | 85 |
| | Beulah College | 24 |
| | 'Eua High School | 26 |
| | Lavengamalie College | 36 |
| | Liahona High School | 68 |
| | Mailefihi/Siulikitapu | 49 |
| | Queen Salote College | 40 |
| | St. Andrew's College | 22 |
| | Takuilau College | 23 |
| | Tonga College | 50 |
| | Tonga High School | 89 |
| | Tupou College | 57 |
| | Tupou High School | 60 |
| | Vava'u High School | 44 |
| | | 673 |
| Western Samoa | Avele College | 29 |
| | Catholic Senior School | 55 |
| | Leulumoega Fou College | 28 |
| | Logoipulotu College | 6 |
| | Maluafofua College | 32 |
| | Samoa College | 195 |
| | Tuasivi College | 20 |
| | Vaipouli College | 19 |
| Wesley College | 36 | |
| | | 420 |

Table 2

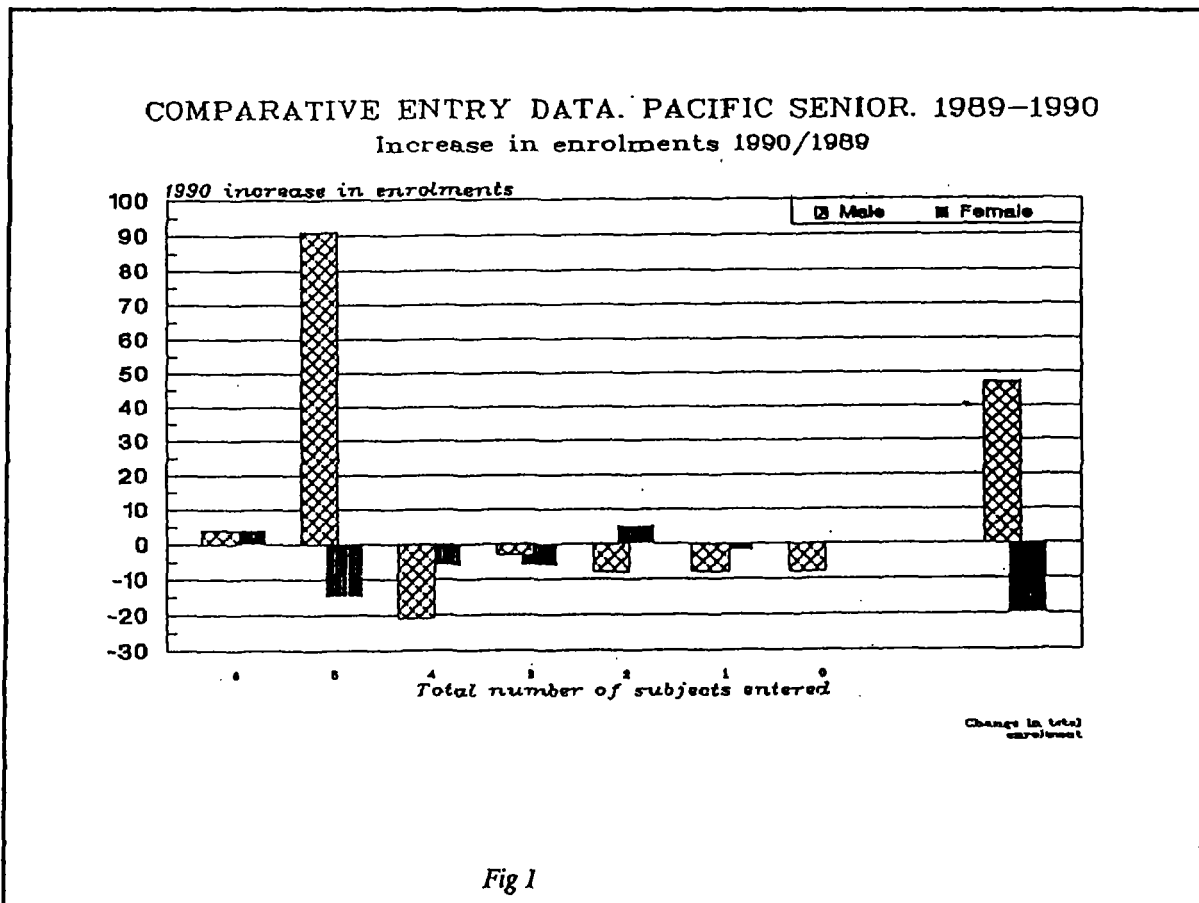
3. Entry by Number of Subjects Enrolled

Table 3 shows a comparison of student enrolments in 1 to 6 subjects. Gender data is also given. The total enrolment in the examination rose by a little over 2% but the table shows a significant increase in 5 subject enrolment with a compensating decrease in 4 subject enrolment and less. The number of girls enrolling in 1990 decreased by a small amount, so it is among the boys that there has been a marked swing to enrolling in at least 5 subjects.

| Subjects entered | 1989 | | | 1990 | | | Change | | | Total |
|------------------|------------|------------|-------------|------------|------------|-------------|--------|-------|-------|------------|
| | Boys | Girls | Total | Boys | Girls | Total | Boys | Girls | Total | % change |
| 6 | 7 | 5 | 12 | 11 | 9 | 20 | 4 | 4 | 8 | 66.7 |
| 5 | 343 | 287 | 630 | 434 | 272 | 706 | 91 | -15 | 76 | 12.1 |
| 4 | 267 | 232 | 499 | 246 | 226 | 472 | -21 | -6 | -27 | -5.4 |
| 3 | 14 | 13 | 27 | 11 | 7 | 18 | -3 | -6 | -9 | -33.3 |
| 2 | 14 | 3 | 17 | 6 | 8 | 14 | -8 | 5 | -3 | -17.6 |
| 1 | 12 | 8 | 20 | 4 | 6 | 10 | -8 | -2 | -10 | -50.0 |
| 0 | 14 | 3 | 17 | 6 | 3 | 9 | -8 | 0 | -8 | -47.1 |
| Total | 671 | 551 | 1222 | 718 | 531 | 1249 | | | | 2.2 |

Table 3

Fig 1 displays this change in enrolment pattern.



4. Scaling Results

As a result of investigations into marker batch variations in 1989, it was decided to introduce inter-marker scaling for 1990 wherever it seemed warranted.

Marker batches are randomised by the ATLAS system, but this in itself does not mean that all markers should return identical means and spreads. An ANOVA test has been built into ATLAS which produces statistical evidence concerning inter-marker variation. A Fisher f-statistic is calculated and administrators must then decide whether this is significant and whether all marker batches should therefore be standardised to a common mean and standard deviation.

Results of inter-marker scaling are given in No. 10, but suffice here to say that Biology, English and Geography were adjusted for inter-marker variation.

The next step in the scaling process is to include the internally assessed scores where relevant. Results of standardisation of internally assessed scores are given in Appendix A on a country basis.

The results of scaling then, are given in Table 4

| Subject | Number | Raw Mn | Raw Sd | Scal.Mn | Scal.Sd |
|-------------|--------|--------|--------|---------|---------|
| Accounting | 418 | 32.5 | 12.2 | 49.4 | 17.1 |
| Biology | 660 | 38.4 | 14.0 | 49.2 | 17.1 |
| Chemistry | 489 | 48.8 | 16.3 | 52.1 | 17.0 |
| Economics | 376 | 36.4 | 11.5 | 49.9 | 16.4 |
| English | 1239 | 46.0 | 14.3 | 49.5 | 17.0 |
| Geography | 594 | 44.2 | 14.8 | 47.7 | 16.5 |
| History | 296 | 42.2 | 14.8 | 51.5 | 17.2 |
| Mathematics | 1073 | 39.0 | 18.6 | 49.8 | 17.1 |
| Physics | 506 | 46.1 | 17.7 | 52.9 | 16.9 |

The distribution mean of all raw scores was 41.1 with a standard deviation of 16.1. After scaling the distribution mean of all scores was 50.0 with a standard deviation of 17.0

Table 4

5. Mark Distribution Comparisons between 1989 and 1990

It is worth comparing the raw score subject distributions between the two years. All papers were set by the same examiners. These are shown in Table 5 below.

| Subject | 1989 Mn | 1989 Sd | 1990 Mn | 1990 Sd |
|-------------|---------|---------|---------|---------|
| Accounting | 41.9 | 13.6 | 32.5 | 12.2 |
| Biology | 47.5 | 16.5 | 38.4 | 14.0 |
| Chemistry | 52.5 | 18.3 | 48.8 | 16.3 |
| Economics | 30.6 | 12.2 | 36.4 | 11.5 |
| English | 46.8 | 14.7 | 46.0 | 14.3 |
| Geography | 36.6 | 16.3 | 44.2 | 14.8 |
| History | 49.7 | 14.0 | 42.2 | 14.8 |
| Mathematics | 43.6 | 20.3 | 39.0 | 18.6 |
| Physics | 38.5 | 17.0 | 46.1 | 17.7 |
| GLOBAL | 43.8 | 17.5 | 41.1 | 16.1 |

PROJECTED DRAFT BUDGET ALLOCATIONS 1987 - 1991

| HEAD | 1987 | 1988 | 1989 | 1990 | 1991 |
|--------------------------------|---------------|---------------|---------------|---------------|---------------|
| I Personnel | | | | | |
| i) Co-ordination Services | 1,400 | 1,400 | 1,400 | 1,400 | 1,400 |
| ii) Clerk | 6,000 | 6,000 | 6,000 | 6,000 | 6,000 |
| iii) Data Entry | - | 3,000 | - | - | - |
| iv) Consultants | 4,600 | 4,600 | 4,600 | 4,600 | 4,600 |
| II Curriculum Panels | | | | | |
| i) Workshops | 20,000 | 20,000 | 20,000 | - | - |
| ii) Marking/Examining/Costs | - | - | 10,000 | 10,000 | 10,000 |
| III Standardised Tests | | | | | |
| i) Development (ST) | 4,500 | 9,000 | 9,000 | 9,000 | 4,500 |
| ii) Prescription Printing | - | 10,000 | - | - | - |
| iii) Form VI Development | 10,000 | 10,000 | - | - | - |
| IV Security | | | | | |
| i) Alteration to Room | - | 10,000 | - | - | - |
| V Equipment | | | | | |
| i) Photocopier | 5,000 | - | - | - | - |
| ii) Computer | 12,000 | - | - | - | - |
| VI Regional Item Bank | | | | | |
| i) Item Collection | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 |
| ii) Program Consultancy | 5,000 | - | - | - | - |
| iii) Annual Booklets | - | 1,000 | 1,000 | 1,000 | 1,000 |
| VII Training | | | | | |
| i) Marker/Invigilator Training | - | - | 5,000 | 5,000 | 5,000 |
| VIII Miscellaneous | | | | | |
| Contingency | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 |
| Overheads | 3,600 | 3,600 | 3,600 | 3,600 | 2,600 |
| Report costs | - | - | - | - | 1,000 |
| ANNUAL TOTALS | 79,100 | 85,600 | 67,600 | 47,600 | 43,100 |

List of Personnel associated with RAS/86/058

| <u>Name</u> | <u>Project Area</u> |
|------------------|-------------------------|
| Mr P.Ackerley | Examiner Obj.2 |
| Fr P.Amotu | Supervisor Obj.2 |
| Mr N.Baird | Examiner Obj.2 |
| Mr C.Benson | Examiner Obj.2 |
| Mr T.Benton | Examiner Obj.2 |
| Mr T.Bugotu | Moderator Obj.2 |
| Ms T.Carter | Examiner Obj.2 |
| Mr C.Croft | Consultant Obj.3 |
| Mr P.Davies | Moderator Obj.2 |
| Dr W.Elley | Consultant Obj.1 |
| Mrs E.Etuate | Examiner Obj.2 |
| Mr U.Fasi | Moderator Obj.2 |
| Mr P.Gavin | Consultant Obj.6 |
| Dr A.Gilmore | Consultant Obj.5 |
| Mr F.Griffiths | Consultant Obj.5 |
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| Dr F.Higginson | Unesco |
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| Mr I.Johnston | SPBEA, General |
| Mr M.Kilty | Examiner Obj.2 |
| Mr I.Livingstone | Consultant Obj.3 |
| Mr S.Logo | Examiner Obj.2 |
| Mr L.Lord | Consultant Obj.5 |
| Mr J.Lowe | Supervisor Obj.2 |
| Mr C.Lutui | Moderator Obj.2 |
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| Mr L.Manu | Supervisor Obj.2 |
| Sr L.Markham | Supervisor Obj.2 |
| Mr R.Martin | Examiner Obj.2 |
| Mr D.Maskew | Consultant Obj.6 |
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| Mrs I.Mow | Examiner Obj.2 |
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| Mr R.Pedder | Consultant Obj.2 |
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| Mr V.Pongi | Moderator Obj.2 |
| Dr G.Pook | SPBEA, Obj.1 |
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| Mr N.Reid | Consultant Obj.4 |
| Mr G.Singh | Consultant Obj.5 |
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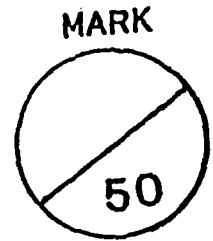
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| Mrs P.Tousoon | Supervisor Obj.2 |
| Mr F.Tutone | Supervisor Obj.2 |
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MINISTRY OF EDUCATION, TRAINING AND CULTURAL AFFAIRS

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SOLOMON
ISLANDS
SECONDARY
ENTRANCE



MATHEMATICS

1989

INSTRUCTIONS :

This is a test to see how well you can do Mathematics.

Part I has 35 questions like this:

Coconuts in the market cost 8 cents each. How many coconuts could John buy for 40 cents?

- A 5
- B 8
- C 10
- D 20

...:...()

'5' is the correct answer.

The letter A is beside the 5.

Write the letter A in the brackets to show that it is the correct answer.

Part II has 15 questions. For each write the answer in the space provided.

If you want to change an answer, cross it out, and write the new answer beside it like this: ~~(X)~~ A

Time : ONE HOUR.

DO NOT OPEN THIS BOOKLET UNTIL TOLD