

Examinations in Technical and Commercial Subjects

Problems and Prospects for
Commonwealth Developing Countries



Commonwealth Secretariat

EXAMINATIONS IN TECHNICAL
AND COMMERCIAL SUBJECTS

PROBLEMS AND PROSPECTS
FOR COMMONWEALTH DEVELOPING COUNTRIES

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INTRODUCTION

In many Commonwealth countries the shortage of educated and trained technical manpower continues to be an impediment to national development programmes based on the use of technological processes. Successive Commonwealth Education Conferences have emphasised the importance of technical education as an essential element in manpower development strategies and the main thrust of the technical education programme carried out by the Commonwealth Secretariat in recent years has been directed towards the education and training of technicians.

In response to recommendations from recent Commonwealth Education Conferences, the Education Division has concentrated its efforts in technical education on the promotion of Commonwealth co-operation in four main areas; (a) technical teacher training; (b) liaison between industry and technical education; (c) industrial experience for technical students; and (d) technical examinations.

Technical examinations are an important and integral part of technical education systems and the Seventh Education Conference, Accra 1977, expressed its concern over the difficult educational and administrative problems facing member governments in establishing and maintaining efficient and cost-effective technical examination systems. The Conference therefore recommended that a study be made of the problems encountered in technical examinations.

This study carried out by the Guildford Educational Services under a commission from the Commonwealth Secretariat is in four parts; (a) methodology used; (b) background factors; (c) the present position; and (d) possible solutions.

Although the study is intended as a preliminary investigation of technical and commercial examinations in developing countries of the Commonwealth, it contains a great deal of evidence on technical examinations not previously assembled in a single publication. This has been made possible by the excellent response which we have received from Ministries, technical institutions, regional examination councils and international examining bodies. Our thanks are due to all these organisations for the assistance so readily given.

The present study was commended by the Eighth Commonwealth Education Conference which met in Colombo in August 1980 as a valuable contribution to Commonwealth co-operation in technical and vocational education. The Conference recommended that the Secretariat should pursue follow-up action on two fronts to assist member countries in dealing with the problems in technical and vocational examination: (a) the convening of a working group to formulate proposals on the problems encountered in technical and vocational examinations and (b) the provision of assistance to member states for the purpose of strengthening their examination systems. We are beginning action on these recommendations and hope to disseminate the results in a further publication in the coming year.

Rex E.O. Akpofure
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PART 1

THE STUDY

AIMS AND ASSUMPTIONS

1. In the Spring of 1979 the Commonwealth Secretariat commissioned Guildford Educational Services Ltd. (GES) to undertake a preliminary study of problems relating to technical and commercial examinations in the developing Commonwealth.

2. The origin of this study was the report of the 7th Commonwealth Education Conference held in Accra in March 1977. The relevant extract is:

There is widespread questioning of established systems of technical examinations, some of them heavily used but external both to the teaching institution and to the country concerned. Sometimes these systems have been rejected without a substitute system being first established, and some governments are in need of help over the solution to this problem at a national or regional level. It is therefore recommended that a study be made of the problems encountered in technical examinations.

3. In discussions with the Commonwealth Secretariat it was agreed that the study should be broadened to include commercial examinations because these had some similar characteristics to technical examinations. It was also agreed that as qualifications were inseparable from examinations they should be included in the study.

4. The resources available for the study were limited and it was agreed that it should be undertaken as a 'desk' exercise to

- (a) establish the present position relating to technical and commercial qualifications and examinations
- (b) as far as possible identify and analyse the problem
- (c) suggest lines on which solutions could be based
- (d) provide a report which could be a framework for discussion and further study.

5. For the purpose of the study technical and commercial qualifications were defined as those which 'fell between but did not include trade tests at one end of the scale and university level awards at the other'.

6. It has also been possible, as a by-product of the study, to start to establish a data base within the Commonwealth Secretariat on technical and commercial examinations in the developing countries of the Commonwealth.

7. The study has been based on the following assumptions:

- (a) when an individual's career depends on passing an examination and obtaining a qualification, it is incumbent on those responsible, as far as possible, to ensure that the rules for the award of the qualification are consistent and fair, that the examination itself is valid and reliable,

and that the efficiency of the administrative arrangements is beyond reproach;

(b) there is likely to be a conflict between these various qualities and between them and the resources available, and there is no general 'right' balance which is universally applicable;

(c) the decision as to what is the right balance for a particular place at a particular time will be a local one, but those making the decision will wish to be aware of the likely consequences of the various courses of action open to them;

(d) in particular it is not the function of the study report to advocate a particular form of qualification and examination system, but rather to illuminate the factors which should be taken into account and suggest how some of the inherent disadvantages in the present situation might be overcome.

8. Throughout this report examinations are classified as follows:

(a) whether the examination questions are

(i) banked (i.e. prepared, field-tested and stored in a 'bank' for use as required)

(ii) traditional (i.e. specially prepared for each occasion)

(b) whether the examination is set and marked

(i) internally (by the college attended by the student) without validation

(ii) internally with validation

(iii) externally (by a body other than the college attended by the student).

9. In this report

(a) Part 1 describes the methodology adopted and the nature of the evidence

(b) Part 2 contains analyses of background factors

(c) Part 3 describes the present position in the developing Commonwealth

(d) Part 4 considers an approach to solutions

(e) Appendices I - VI contain supporting material.

METHODOLOGY

10. When the study started there was no existing body of information which gave a complete picture of the present position on technical and commercial qualifications and examinations in the developing countries of the Commonwealth. The first priority therefore was to establish, in broad terms, what was actually happening. It was hoped that in doing this a number of the problems could be identified, but it was always envisaged that this would be a preliminary study, to be followed up in due course with more detailed ones.

11. Initially, the following methodology was adopted:

(a) A questionnaire was sent to all Ministries of Education and to as many colleges as could be identified in the developing countries of the Commonwealth.

(b) Contact was made with two regional examining councils: the West Africa Examinations Council and the East African Examinations Council.

(c) Statistical information on examination candidates from those countries was obtained for the 1977/78 academic year from the City and Guilds of London Institute (C & G), the London Chamber of Commerce and Industry (LCCI), the Royal Society of Arts (RSA) and the Union of Lancashire and Cheshire Institutes (ULCI). Statistical information, although not in a compatible form, was also provided by Pitmans Examination Institute.

(d) Discussions were held with the Secretaries or other senior staff of the UK examining bodies listed above, and with other people with experience of examining systems and of technical education in the Commonwealth.

12. As the study progressed it became apparent that many of the problems which developing countries might be having with qualifications and examinations were those inherent in the award of qualifications and the conduct of examinations, exacerbated by a number of factors relating to the developing countries themselves. It therefore seemed sensible, as part of the study, to provide analyses of the operational requirements of vocational qualifications and examinations, of the principles of costing such operations, and of the special factors which affect qualifications and examinations in developing countries.

The nature of the evidence

13. The study has thus generated different types of evidence:

(a) the factual position revealed by the questionnaire responses

(b) the opinions, especially on outside examinations, set out in the questionnaire responses and quoted in Appendix II

- (c) the statistics collected from the examining bodies
- (d) the analyses undertaken by GES on the basis of 'in house' experience and outside discussions
- (e) information obtained from the regional examining councils
- (f) the discussions with the senior officers of the UK examining bodies, and others.

14. In a preliminary study of this nature it is to be expected that some conclusions particularly on matters of fact, will be very well founded; that others may be more tentative; and that others again will be speculative but still may be of value as hypotheses to be checked in further studies. It is important that the reader should be able to distinguish which is which. This is particularly so as the origin of the study calls for broad generalisations applicable to the developing Commonwealth countries as a whole rather than to individual states.

15. Extracts from the questionnaire are given in Appendix I. It was posted at the beginning of June 1979 by the Commonwealth Secretariat to 42 Ministries of Education and to 185 colleges and polytechnics.

16. The questionnaire fell into two parts. In Part I respondents were asked to indicate the courses offered by subject area and level and type of qualification. For the purpose of the questionnaire a wide range of technical and commercial subjects were listed in 32 groups, and a facility for writing in additional courses was also provided. In the event the only major groups of subjects found to be omitted were Shipbuilding and Boatbuilding, and those relating to sea-going personnel.

17. In the questionnaire technical qualifications and examinations were divided into three levels, which fell between but did not include trade tests at one end of the scale and university level awards at the other.

Higher Technician: Typified by C & G Technicians Part 3 or the Higher Technician Diploma. Also included some of the awards of professional and similar bodies if they were below graduate level. Technical management studies were also included at this level.

Technician: Typified by C & G Technicians Part 1 and 2 or the Ordinary Technician Diploma. General Courses and Supervisory Studies were included at this level.

Craft: All levels of C & G Craft courses. Also included Mechanics and Operatives work.

Similarly commercial qualifications were divided into three levels, roughly corresponding with those adopted by the RSA and the LCCI.

Stage III: Advanced
 Stage II : Intermediate
 Stage I : Elementary

18. Qualifications were analysed into four types:

- (a) Qualifications awarded by LOCAL EDUCATIONAL INSTITUTIONS (e.g. a polytechnic or a college).
- (b) NATIONAL QUALIFICATIONS awarded by a Government Department or National Body.
- (c) REGIONAL QUALIFICATIONS awarded by a regional examining council in which several countries participate.
- (d) OUTSIDE QUALIFICATIONS, awarded by institutions completely outside the nation or region including both those awarded by such bodies as City and Guilds, the Royal Society of Arts, the London Chamber of Commerce and Industry, and also those awarded by, say, American universities to students in some Caribbean colleges. Where outside qualifications were used, respondents were asked to indicate on a five point scale their judgement of the appropriateness of the examination syllabus to local employment requirements.

19. In Part II of the questionnaire Ministries and colleges were asked to give information on any recent or forthcoming changes in policy concerning technical or commercial qualifications or examinations; the reasons for using outside qualifications; and to make any other comment on technical or commercial qualifications which might be useful.

20. Completed questionnaires (or letters in lieu) were returned by 86 respondents in 35 countries. The responses gave a very helpful broad picture of the present position in the developing Commonwealth, both in the detailed subject information and in their illuminating comments.

21. Where more than one questionnaire was returned from a country, whether these included a Department of Education and one or more educational establishments, or just the latter, it was remarkable how the impressions they gave agreed with each other. Moreover, in many cases, the impression given by the questionnaires was confirmed by the detailed information collected from the UK examining bodies and by discussions with their senior officers. The survey by questionnaire therefore enables broad generalisations to be made about the present use of college, national, regional and outside examinations.

22. The comments expressed in the responses to the questionnaire were often illuminating and interesting; a selection is given in Appendix II. Some of them directed the investigators to points which might otherwise have been missed. However, there are limitations:

- (a) They are expressions of opinion, and one can only speculate whether similar opinions would have been expressed by respondents from establishments which did not return the questionnaire.

- (b) The main priority of the questionnaire was to establish the facts of the present position, and it was not an appropriate medium for identifying any particular problems being experienced with college, national or regional examinations. Any information on these points has been fortuitous and is of limited application only.

(c) Because of the wording of the questionnaire, most of the opinions quoted relate to the use or replacement of outside examinations. Appendix II could therefore give the impression that these are the sole issues, whereas there are others which did not emerge because of the way in which the questionnaire was designed.

Examining Body Statistics

23. The information collected from the examining bodies was based on the number of candidates who actually sat the examination (rather than those who had entered and for whom question papers were provided), and the number who had passed. No attempt was made to differentiate between single subject examinations and those in which there were several question papers. The definition of what constituted an examination was that of the examining body.

24. The information collected was then collated into the same definitions of subject area and level as were used in the questionnaire. For example technician level in Electronics and Telecommunications included the results of nearly 40 City and Guilds examinations. Similarly, where examinations were taken at different times during the year the statistics were aggregated to obtain a total picture for the complete academic year. This information has been deposited with the Commonwealth Secretariat.

25. Detailed statistics collected from examining bodies are accurate, but far too complex to be reproduced in full. The process of reducing them to intelligible summaries inevitably reduces the validity of the statistics as it involves grouping together the results of different examinations with separate structures, and the examination results of countries with different educational and cultural traditions. Nevertheless it does enable some broad generalisations to be made, which help identify some of the problems.

26. Other limitations on the use of these statistics include:

(a) the impossibility in the majority of cases of relating them directly to the establishments which completed and returned questionnaires, as in all commercial examinations and in many technical ones there is a single national entry through the Department of Education;

(b) the fact that they only refer to candidates who actually sat the examinations, and do not include information on those who entered for examinations but never actually sat.

Discussions with Examining Body Secretaries

27. The purpose of discussions with the Secretaries (or other senior staff) of the examining bodies was to

(a) obtain an understanding of their view of their present role in providing examinations for developing countries;

(b) identify any problems which they were meeting in fulfilling their present role;

(c) explore, without commitment, how far they would be prepared to change their role in future if this became desirable.

PART 2

BACKGROUND FACTORS

OPERATIONAL REQUIREMENTS FOR VOCATIONAL
QUALIFICATIONS AND EXAMINATIONS

An operational model

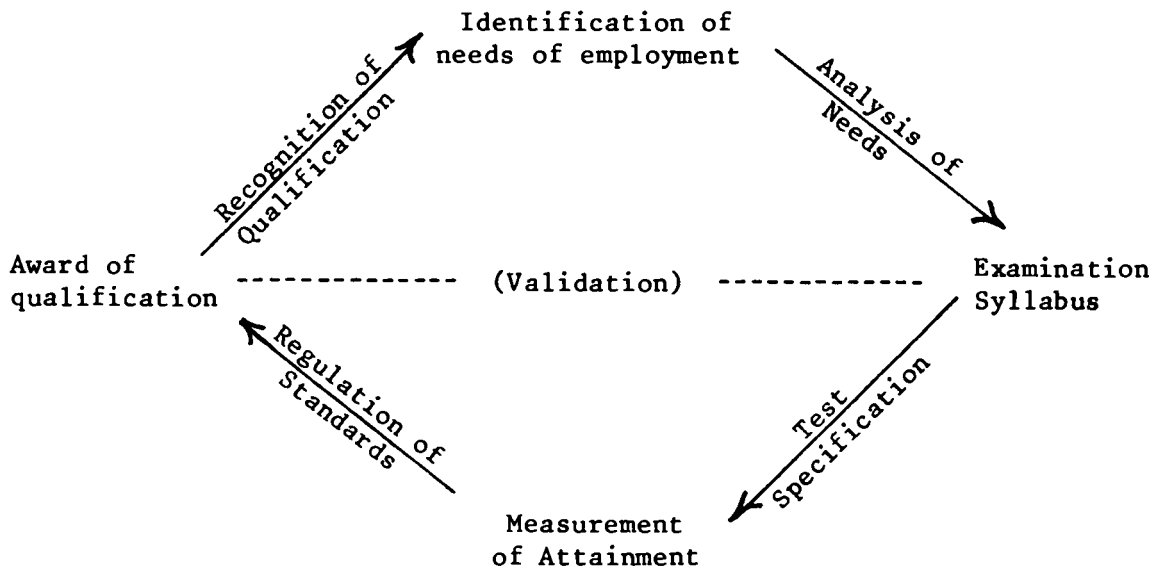
28. In this report specialist terminology (e.g. as used by the Technician Education Council and other qualifying bodies) has been avoided as far as possible. However, in some contexts, and in particular in this section, it is necessary to use some technical terms and so a short glossary is provided in Appendix III.

29. Any system of vocational qualifications and examinations has four essential elements

- Identification of the needs of employment
- An examination syllabus
- Measurement of attainment
- Award of a qualification

Some systems have an additional element: validation.

30. These elements can be shown diagrammatically as follows



31. The essential difference between vocational qualifications and examinations and academic ones is that the former have to meet the needs of employment, in terms of both the content of the examination syllabus and the recognition of the qualification as identifying a standard which is acceptable in terms of a job to be done. Vocational qualifications and examinations always have to be related to this reference point which is external to any educational one.

32. Historically in the UK, and hence in the developing Commonwealth, the other three essential elements have not been separated: a qualifying body sets an examination to determine who is worthy of receiving a qualification,

and establishes the syllabus on which the examination is based. Although it can be convenient in practice to combine these three elements, there is no absolute logic in their combination. In this report they are treated as separate activities requiring different resources and techniques, and they could in fact be undertaken by two or even three separate bodies. To some extent this already happens in validation systems.

33. There are often differences in emphasis over the relationship of a college course to examinations and qualifications. Sometimes a view is heard that the course is all important, and at best a qualification is an additional incentive for students to study hard on the course. What is learned is more important than the means of recognition. A logical development of this view is that a qualification is only awarded if there has been attendance at a course and this in turn can lead either to the award of the qualification by the teaching institution (following the university tradition) or by an external qualifying body adopting a validating role and approving the course (content and often resources and staffing) and the method of assessing student attainment.

34. A contrary view is that the qualification is all important, especially where it is a 'licence to practise', and that a course is merely one of several means of preparing a student for a qualification. A local development of this view is that there should be an external examination which can be taken by students whether or not they have attended a course at an educational institution. The student's attainment is measured by the examination and the mode of learning is irrelevant to the award of the qualification.

35. The operational model illustrated in paragraph 30, accommodates both points of view, and the many shades between them. For example, in the validation system adopted by the Technician Education Council (TEC) in the UK, the college is responsible for identifying the needs of industry, for drawing up a programme of work to meet such identified needs and a scheme of assessment to measure whether the students have attained the objectives of the programme, and for implementing the programme and the scheme of assessment. TEC approves the programme and the scheme of assessment, monitors the implementation, and awards its Certificates or Diplomas to successful students. The essential elements of the model are included within this system, with the addition of approval and monitoring, i.e. validation.

Qualifications

36. To be worthwhile, a qualification, especially a technical or commercial one, has to have currency. It has to be respected as providing evidence that at a stated time an individual reached a certain standard. It may, indeed, be given an exaggerated currency and people may expect that the standard is higher and more consistent than can possibly be guaranteed. But like any other currency, a qualification depends on the confidence which the users have in it. If there is a feeling that the standards are variable or the qualification can be obtained by underhand or backdoor means, its credibility will vanish and it will become worthless.

37. There are three main requirements for ensuring the continuing credibility of a vocational qualification. First, the general standard which a qualification implies has to be acceptable to the user (e.g. the employer of the qualified person). Secondly, the decision whether or not a qualification is awarded to an individual has to be consistent and fair. Thirdly, the guarantor of standards and of consistency and fairness has to be beyond reproach, in terms of both accountability and efficiency. These requirements are considered in greater detail in the paragraphs which follow.

Acceptability of Standards

38. There are three ways of setting a standard:

(a) In norm-referenced standards there is no absolute standard, but the students' results are compared with a norm based on the results of other students, past and present. True norm-referencing implies pretested standardised tests, so that this year's students are compared with previous years' on the same basis. A less rigorous approach is to assume that the standard of students remains the same, and therefore the same percentage should pass, even if the consistency of the examination standard cannot be guaranteed.

(b) In some skills-based examinations (e.g. typing) or in cases where examinations are based on a mastery of clearly stated objectives, it is possible to introduce a criterion referenced standard; e.g. a typist either can or cannot type accurately at 90 words per minute. However, there are many factors which make the introduction of completely criterion referenced standards extremely difficult, for example the comparative quality of the typewriters available, the number of errors considered acceptable. Many apparently criterion referenced standards therefore include within them a normative element. And the criterion itself has to be related to the requirements or expectations of an employer.

(c) Where a new qualification is to be introduced, its standard can receive more rapid acceptability if it can be compared generally to an existing respected qualification, or can achieve recognition as being equivalent to an existing qualification for a specific purpose. The Technician Education Council had to tackle the problem that its award structure was completely different from the National Certificates and City and Guilds. It therefore included the following passage in its 1974 Policy Statement:

'It is expected that the standard of the TEC Certificate will be approximately half way between Parts I and II of the CGLI Technicians' Certificate (T3) or broadly comparable with that of the Ordinary National Certificate. The standard of the TEC Higher Certificate will be broadly comparable with that of the CGLI Technicians' Certificate Parts II and III combined, or with the level of the Higher National Certificate. Any comparability with an existing award in a particular case will depend on the nature of the individual programme'.

Such general statements of intention can be reinforced (as they have in practice with TEC awards) by the specific recognition of the new awards by, e.g. professional bodies (as exempting qualifications) or universities (for entrance to degree courses).

Consistency and Fairness

39. A qualifying body has to convert the general standards implied by its awards into a series of rules which determine whether the level of performance of any individual deserves a qualification. It will also

usually be necessary to have procedures or rules to determine what happens to candidates who marginally fail to measure up to the standard required for a qualification ('borderline cases') and for particular hard cases (e.g. illness or disablement). The credibility of an award will suffer if the rules are applied inconsistently from individual to individual or from year to year, or if they appear to be unfair to any category of student.

40. The concept of consistency is often also applied to comparability of standards as between different colleges. Clearly it would be unfair if a student attended one college and failed, whereas if he had been educated at another he would have passed - not because of a better education but because of a more lenient college-set examination. Unless an external examination is set on a common syllabus, precise comparability is not possible. If colleges are offering different local specialisms like is not compared with like. It can be argued that precise comparability of standards is not essential for employment and what is required is a guarantee of an acceptable overall standard coupled with as much information as possible on the syllabus covered by the students and the level reached in the various subjects. This is what the Technician Education Council sets out to do with its validation and monitoring procedures and its 'profile' certificate.

Efficiency and Accountability

41. It is not enough for a qualifying body to make the right decision. It has to communicate the decision, directly or indirectly to the candidate, and print his certificate or diploma in such a way that it will be difficult to counterfeit. It needs a record keeping system so that if, in subsequent years, there are queries about an individual's right to a qualification, these can be dealt with by the qualifying body.

42. There also has to be a degree of accountability. In the UK, for historical reasons, technical and commercial examinations were largely administered by educational charities with no apparent accountability, but which in practice had a very high degree of accountability within their committee structure. In course of time the international reputation of their awards has reinforced this 'informal' accountability. In other countries, and in the recent establishment of new award-making bodies in the UK, accountability has been achieved by making them part of the public education service (even if financed by examination fees), either with government imposed constitutions or by actually becoming government departments. Yet another form of accountability is achieved by professional institutions, which are accountable to their membership for the qualifications which convey membership rights.

Resource requirements for qualifications

43. A qualifying body therefore requires staff who are
- (a) sensitive to the requirements of the users
 - (b) able to develop (directly or through consultants) norm-referenced or criterion-referenced standards
 - (c) able to negotiate recognition for its awards
 - (d) competent administrators (with access to adequate security printing and record keeping and, in many cases, data processing)

- (e) accountable for the decisions which affect the careers of individuals.

Measurement of Attainment

44. When a student's future career depends on gaining a qualification, and gaining a qualification depends on the measurement of his attainment, then great trouble must be taken to ensure that such measurement is as accurate, fair and consistent as possible. It is not sufficient to take the line that any competent teacher of a subject can set an examination paper and mark it, and that all students with 40% or better can pass - because such an action gives no guarantee of accuracy, consistency or fairness. The measurement of human attainment is a complex task calling for a high degree of professionalism. There is a large literature covering the necessary techniques.

45. In particular, measures of attainment should be valid, reliable, efficient and have beneficial rather than detrimental side effects. A more detailed explanation of these qualities is to be found in the literature on examinations; a short bibliography is included in Appendix VI. In this section we are concerned with the operational requirements to achieve these qualities.

46. The ways in which these qualities will be achieved will depend in part on the examination methods used, as defined in Part 1:

- (a) whether the examination questions are banked or traditional
- (b) whether the examination is set and marked:
 - (i) internally without validation
 - (ii) internally with validation
 - (iii) externally.

Validity

47. An examination or a question is valid if it tests what it purports to test and if what it purports to test is itself appropriate (i.e. whether the syllabus itself is valid - see paragraph 66).

48. Assuming that the syllabus is valid, then the validity of the examination paper as a whole depends on it having a balanced relationship to the syllabus. The questions which have to be asked are:

- (a) Is there a wide coverage of the syllabus?
- (b) Is there an appropriate balance between syllabus topics and abilities?
- (c) Is the coverage consistent from year to year?

49. In turn the validity of a question depends in part on whether it is set on the syllabus and in part on whether it has been designed correctly. The sort of questions which have to be asked are:

- (a) Is the content realistic and important or merely trivial?
- (b) Does it test appropriate knowledge and abilities?
- (c) Does it avoid dependence on inappropriate abilities

(e.g. is it in practice testing writing ability although the real need is to test theoretical knowledge)?

(d) Is the response expected from the student consistent with the abilities to be tested? (e.g. if a sketch is required is this meant to be illustrative or to prove that the student can draw?)

(e) Is the response expected from the student appropriate to his knowledge at that stage of his educational progression?

(f) Is the question intelligible to the student? (e.g. is it reasonably 'culture-free'?)

(g) Is the question ambiguous? Does it give away the answer?

(h) If the question involves a problem or equation, can it be solved from the given data?

50. The answers to the questions in paragraphs 48 and 49 require the exercise of judgement. The disciplines of establishing a test specification and editing or moderating, enable the judgement of several experts to be brought to bear. If the system involves banking, the discipline of pre-testing or field testing then enables the students' responses to the questions to be gauged. There is no absolutely certain formula for ensuring validity, but the above disciplines, properly applied, are the normal methods adopted by professionals in the field to ensure that examination questions are as valid as possible.

Reliability

51. A reliable examination is one which for similar groups of students produces results which will be consistent from one occasion to another. If it fails to do this, then any qualification given as a result of the examination will differ in standard from year to year.

52. Reliability is measured on a mathematical scale and, unlike validity, can be stated to a precise degree of accuracy. There are, however, major practical problems of estimating the reliability of attainment tests: different question papers have to be used on each occasion for reasons of security; there is a time limit to the amount of remarking and analysis which can be undertaken before a result is issued; and students cannot be made to sit a second set of papers to compare their results.

53. One approach to the solution of these practical problems is to bank questions - usually objective test items. By keeping a record of the history of a question in terms of how well students have performed, or by pretesting a new question, an estimate of the reliability of questions and therefore of an examination paper as a whole can be built up before the examination is taken. Pretesting, however, requires a reasonable number of students if it is itself to be reliable. City and Guilds aims at 300, and it seems likely that once the pretest population falls below 120 there will be problems in establishing the reliability of the items.

54. In traditional examinations the approach is different. If the student population has the same characteristics as that of previous years then, if the examination is completely reliable, the same proportion

should pass at a given pass mark. Taken a stage further, the pass mark can be adjusted so that the same proportion pass each year, i.e. a correction is made to compensate for any loss of reliability. Even if the numbers of the candidates are about the same, there may be other factors affecting their success rate: e.g. a change in employment patterns, standard of recruitment, course structure (including the introduction of a lower or higher course). A college with good records of previous classes and knowledge of present students is in a better position to gauge how this year's class compares with the past than a more remote external examining body. Indeed the latter should only follow this sort of procedure if the student entry is large enough for the examining body to be reasonably confident that individual or local variations will be ironed out in the 'sample'. Theory, based on 'the standard error of the mean', does not suggest any absolute size for the student entry, but shows that once it drops below 500, there is a severe loss of reliability and that 100 is certainly too low for the use of this procedure.

55. The third approach to reliability is that adopted by the Technician Education Council. There are three coarse grades (Pass with Merit; Pass; Fail) and most students can be allocated quickly and reliably into one of them. All cases of doubt are treated as borderline and considerable time and trouble is spent considering them. This approach is more readily undertaken by a college setting and marking internally than by an external examining body.

56. It will be seen therefore that standards can only be maintained if the measurements of attainment are reliable, and that achievement of reliability requires a knowledge of basic theory, maintenance and analysis of records, and an insight into the practical problems of examining.

Efficiency

57. There are two aspects of efficiency. Firstly, an efficient scheme of assessment is one which makes the best use of the resources spent on it and makes no unnecessary demands on students, teachers or examiners. The second aspect relates to the efficiency of examination administration.

58. In any system of measurement of attainment (whether internal or external) the following operational stages are necessary:

- (a) Drawing up a test (examination) specification
- (b) Compiling a paper (if a bank is used) or having an examiner set a paper (in a traditional system)
- (c) Editing (bank) or moderating (traditional)
- (d) Printing
- (e) Arranging for the invigilation of candidates
- (f) Marking
- (g) Analysing the students' results
- (h) Reporting the students' results
- (i) If a system is based on banking, analysing and recording the way in which the questions performed

(j) Feedback and evaluation.

59. If the examination is external there are the following additional stages

(a) Determining and publicising an examination timetable

(b) Arranging for candidate entry and collection of any fees

(c) Despatch of question papers

(d) Arrangements for return of candidates' scripts and marksheets (and if a banking system is used, question papers)

(e) Dealing with queries.

60. The development of an efficient administrative system for examinations which lead to qualifications is thus a major undertaking, even if the examinations are internal, but particularly if they are external.

Side Effects

61. All methods of measuring attainment have some influence, either beneficial or harmful, upon the related courses. Inappropriate or inefficient methods, or failure to follow recognised examination practice, may lead to undesirable side effects. End of course examinations, for example, are sometimes said to encourage rote learning at the expense of critical thinking, but this is likely to be because the examination questions are poor and do not test the right abilities.

62. External examinations can have powerful side effects outside the confines of the classroom. Publishers are more likely to invest capital in producing text books if there is an external examination syllabus. The dissemination of new techniques is often much quicker if they are taken up by an external examining body; the prime examples are City and Guilds and multiple-choice testing and the Technician Education Council with learning objectives (although the latter was through a validation system rather than examinations).

63. The side effects of examinations cannot always be predicted in advance and the elimination of undesirable side effects and the encouragement of beneficial ones calls for particular qualities of sensitivity and knowledge on the part of staff responsible for examinations - whether internal or external.

Resources for the Measurement of Attainment

64. The measurement of attainment requires personnel who are

(a) expert in the theory and techniques of educational measurement

(b) expert in their own subject matter for the setting and marking of papers

(c) efficient administrators, capable of handling a complex, multi-stage system with high security requirements

- (d) sensitive to the effect of examinations on the students and teachers, and indeed on industrial performance.

Measurement of attainment also requires physical resources such as duplicating or printing facilities, secure storage, and often optical mark reading and computing facilities.

65. Probably no external examining body can hope to have all such expertise or physical resources 'in house' and so there is a great dependence on part-time assistance, and use of other outside services (e.g. printing and computer time). An educational institution may have all the necessary expertise 'in house', but the academic tradition often prevents it from being applied - hence the need for external moderation.

Examination Syllabus

66. An examination syllabus is a bridge between the needs of employment and what it is practicable to test in an examination. At one end it depends on an analysis, or a series of options, of what the needs of employment (including career progression) are and are likely to be, given the time-lag between syllabus production and the emergence of the first qualified personnel. At the other end the syllabus is a statement of what the examination will cover. It is now normal, but not universal, to set it out in 'learning objectives' - what the student can do at the end of a course - and to accompany it by a test specification to show the weight to be given to the various parts of the syllabus and to the learning categories involved (e.g. knowledge, comprehension, application, synthesis, psycho-motor skills). In between, account has to be taken of the structure of the educational system, the resources available to the educational establishments and the probable characteristics of the students. An examination syllabus is almost always a compromise, but it is essential that its content has validity for the employment and educational system it services; otherwise the examinations based on it will themselves not be valid.

67. Because of the need to bring together the various factors described above, it is normal for examination syllabuses to be put together by committees with a membership able to express the conflicting points of view. It is not uncommon for most of the work to be done by small groups, exchanging comments by correspondence where long distances are involved.

Resources for Syllabus Development

68. Syllabus development requires substantial resources, to provide the initial analysis of industrial need, to write the content, to service committees or postal circulation and, in particular, to turn general curriculum statements into specific learning objectives, and to draw up a test qualification.

Validation

69. Validation is the recognition by an external qualifying body of college courses and examinations. It can take many forms. At the minimum the college submits its examination syllabus for approval, then its question paper and finally a sample of marked scripts. At the other end of the scale the validating body concerns itself with course content, college staffing and physical resources and may send a team to visit the college before the course is approved. It may then carry out regular monitoring of the running of the course and of the assessment or examination of students, using a

combination of visiting moderators and statistical analysis of performance. The main benefit of a validation system is that it enables local initiatives and special requirements to be rewarded by external qualifications, but only approximate comparability of standards can be achieved.

Resources for Validation

70. The resources required by the qualifying body for validation will therefore vary according to the extent of involvement of the validating body in the work of the college. At the least it can be a simple extension of external examinations; City and Guilds, for example, has simple standard procedures for 'The Administration of College-Set, Institute-Assessed Syllabuses and Examinations'. Towards the other end of the scale the Technician Education Council has a strong team of specialist advisory officers working with validating committees for each main subject area, a large cadre of part-time moderators (and a few full-time) and a complex data processing system; and even the Technician Education Council keeps to the minimum the visits to colleges by course approval teams.

71. Validation also puts a greater responsibility on the colleges, and the requirements of a validating body can impose a strain on college resources, particularly if it changes from a system based on external examinations to one based on validation. Again, the college resource requirements will depend on how far the validating body involves itself with the detail of the work of the college.

Conclusion

72. The decision-making and administrative aspects of operating a qualification system, although vital to the future career of individuals, require far fewer resources and less highly trained or specialist staff than either the measurement of attainment or validation and their supporting administrative systems. The measurement of attainment, if undertaken externally to the students' college, requires a candidate entry of several hundred if the requirements of reliability and norm-referenced standards are to be properly met. The implications of both these points are considered further in Part 4 of this report.

PRINCIPLES OF COSTING
QUALIFICATIONS AND EXAMINATIONS

73. Costing depends on so many variables (including salary scales, exchange rates, postal charges, the rate of inflation) that the detailed comparative costs of different approaches to qualifications and examinations will vary from time to time and from place to place. It is possible, however, to derive some general principles of costing qualification and examination systems. These principles relate solely to cost and do not take into account whether a particular approach is preferable for other reasons.

74. It is first necessary to decide whether the cost to be considered is for the educational system as a whole; an external qualifying/examining body, whether the latter be national, regional or international; or an internal college system.

The Educational System

75. If the total cost to the educational system is to be considered then the following generalisations are a guide to the likely effect of different approaches:

(a) An external system can have economies of scale which can bring down the unit cost per candidate to below that of an internal system, but there may be hidden costs to a college (e.g. in having to fit its work round set examination dates or having to use prescribed materials in practical tests instead of those locally available). However, a small scale external system may have fairly high unit costs.

(b) A completely internal system in which each college examines and awards qualifications to its own students without any external examining or validation is likely to be the least expensive provided three criteria are met

(i) The college is able to make use of existing expertise and administrative resources. If additional staff have to be appointed, then the cost advantages of an internal system are dissipated.

(ii) The college is able to combine its teaching requirements with those of testing students and awarding qualifications.

(iii) Separate colleges are not preparing and marking nearly identical examination papers. Such duplication of effort between colleges can soon become more expensive than any duplication involved in an external examination system.

(c) Validation is likely to have higher costs for the system as a whole as there is a duplication of work between the college and the external body; the level of costs will vary in relation to the extent to which the validating body involves itself in the college work.

External Systems

76. Within an external qualifying/examining system a distinction has to be made between capital and operating costs. Capital costs are normally incurred for development work on examination syllabuses, question banks, computer programming and machinery, and operating systems.

77. Examination syllabuses normally have a maximum 'shelf life' (a reasonable average is about five years) before they are revised or replaced and so if the capital costs are not covered by an outside development grant, they have to be 'recovered' within that period. In practice most examining bodies do not see this as recovery of capital but as providing a surplus for new development work or revision. The problem is that the development cost of a syllabus is likely to be the same whether there are 10,000 candidates or 10.

78. Banked questions also normally have an average 'shelf life' of about five years. Although the capital costs are high, the operating costs of objective questions are extremely low and the capital costs can probably be recovered (or a surplus obtained for renewals) over five years if there is a reasonably large annual candidate entry. The critical size of entry will vary but is unlikely to be less than 200 candidates, and will often be nearer 500. Banked questions which are not objective in format will save the setting costs each year, but not the marking costs. Recovery of capital costs over five years will depend on the relative costs of the proportion of full-time staff involved in the setting process compared with the fees for marking.

79. Computer programmes and machines also have a limited life. Although it may be longer than five years, it is probably wise to try to recover the development costs within a limited period.

80. Operating systems should have a longer life than five years, possibly so much longer that it is not necessary to consider recovering the development costs within a set period, but this would depend on the accounting policies of the body concerned.

81. The long-standing UK examining bodies have been able to spread their initial high capital development costs over quite long periods of years while ploughing back candidate's fees, whereas new bodies are likely to have very high initial costs before any income is obtained.

82. Operational costs contain a number of elements including

- (a) fixed overheads
- (b) general operating costs which are related to the total throughput of candidates in all examinations (e.g. postage, examination stationery, examination timetable printing)
- (c) specific operating costs which are related to individual examinations
- (d) recovery of development costs for specific subjects.

In many external examination systems the sum total of elements (c) and (d) is greater than that of (a) and (b), so the subjects with large numbers of candidates tend to have very low unit costs and those with few candidates have high unit costs. Where the examining bodies are non-profit

making bodies, the surplus generated by additional candidates is either ploughed back into development work or used to keep down the cost to the candidates. Examining bodies tend to average out their costs over the full range of examinations, but are concerned if they have many examinations with very few candidates as these raise the average unit cost. In these circumstances candidates in the large number subjects are effectively subsidising those taking the smaller subjects.

83. In traditional style examinations the capital cost of a specific examination lies in the development of the examination syllabus, either initially or as a replacement. The operating costs include the setting, printing and marking of a new paper for each examination and so are comparatively high. While the marking costs are constant for each candidate, the setting and printing costs, like the development costs, can be averaged out over all the candidates, so the unit costs fall quite rapidly as the number of candidates increases.

84. As already noted, where questions are banked the development costs of the bank are high but the operating costs are low. This is particularly so in the case of objective questions which can be marked by machine. In this case a smaller proportion of the operating costs are incurred per candidate and a larger proportion are spread over all the candidates, so with a large candidate entry the unit costs fall even lower than with traditional examinations.

Internal College Systems

85. In order to carry out its proper function as a teaching institution a college has to have:

- (a) a teaching syllabus to which its lecturers work
- (b) a system of testing students to monitor their progress and provide feed-back on the effectiveness of the teaching
- (c) records of past and present students.

86. Although these requirements are less rigorous than those for qualifications and examination where the syllabus has to be a matter of record, the tests have to have the attributes described in paragraphs 44-63 and the records of students may have to be kept for the duration of a working life or longer - perhaps half a century. However it should be possible to design a college system which incorporates the more rigorous requirements and also those which a college has to undertake as a teaching establishment (paragraph 85). If this can be done then the cost of a college system can be kept reasonably low.

Validation

87. A validation system differs in cost terms from a completely internal system in that the college is partially involved only, normally for testing with the examination syllabus provided or agreed by an external body, which also awards the qualification and is responsible for the special records. As noted in paragraphs 69-71 the resource requirements of validation will vary according to the extent to which the qualifying body involves itself in the work of the college. The more it so involves itself, the greater the cost to both parties and to the system as a whole.

Conclusion

88. If costs were the only consideration (and in qualifications and examinations they seldom are), there is little doubt that using a well-established high throughput external examining body is likely to keep the candidate unit costs lower than any other system, provided standard examinations are used. If there is a requirement for a large number of local specialisms, then a college-based system (possibly with low investment validation) is likely to be more economic.

FACTORS AFFECTING QUALIFICATIONS AND EXAMINATIONS

IN DEVELOPING COUNTRIES

89. Factors which affect the provision of examinations and the award of qualifications in developing countries can be classified as being associated with development, geography, culture, opportunities for individuals, and resources.

Development

90. Development implies rapid, constant and fundamental change in social goals, expectations and institutions; in economic goals; in a country's physical and human infrastructure; in the application of technology and in manpower needs. These aspects of development can cause particular difficulties in relation to qualifications and examinations.

91. One problem is how to achieve a continuity of course and examination standards in a period of change. Such continuity is important to maintain the reliability of course, examination and qualification as an entry to employment. As the needs of the country change so the syllabuses on which the examinations are based are likely to change, and continuity may be very difficult to achieve. This continuity may, indeed, have a low priority in the political aims of the country, but the credibility of a qualification (or the lack of it due to constant change in the qualifications available) can have an important influence on individual employment opportunities. Continuity is also important in examination administration, whether in a college or in a national system. Problems can arise if there is too much reliance on expatriate personnel with short-term contracts.

92. A related problem is how to award a qualification which will retain its value throughout the working life of the holder or how to provide opportunities for up-dating. This problem is common to all societies undergoing technical change, but is exaggerated in developing countries because of the rate of change and the proportion of workers affected.

93. Developing countries also tend to have a longer 'technological tail' than developed countries. In agriculture, for example, the most modern tractor-drawn equipment may be used side by side with ox-drawn ploughs. In commerce, some firms may be using computers or word-processors while others still rely on very ancient typewriters. Boiler equipment in industrial plant can be ancient or very modern. This means that a syllabus which is valid for a developed country may only partly cover the needs of a developing one.

94. Modern societies depend on a very wide range of professional and manual skills, but the numbers required in any profession or trade will in turn be dependent both on the size of the community and the stage of development which it has reached. In the early stages of development large communities may require only a comparatively few people in some of the skilled trades. For example, if electricity is not available to a high proportion of the population only a few electricians will be required, and similar considerations will apply to motor mechanics or aircraft engineers. However, as a society develops, as more of the population are brought the benefits of electricity, as more vehicles come on the roads, so the need for qualified personnel will increase. In a developing country this position will not be static, and it may move quite rapidly from a situation

in which it only has a handful of new entrants to a particular trade in any one year to one where it needs several hundred.

Geographical Factors

95. Most of the developing countries of the Commonwealth are in the tropics, many are remote, quite a few have poor internal communications or, even if the internal communications are comparatively good, long internal distances to overcome. Others may have a widely distributed rural population which may not be easy to bring together in viable groups for technical or commercial education and training.

96. The syllabus content can be affected by the climate (e.g. as in building) and the predominant primary products (e.g. mining or agriculture). It can also be affected by the remoteness of either the country or the trained man within it, who may have to have a wider range of, say, engineering maintenance skills than he might in a developed country where technical back-up from the manufacturer is very readily available, or specialist maintenance help can quickly be obtained. In many ways the plant engineer in a cotton ginnery, for example, may need to have the versatility of a marine engineer in a ship at sea.

97. Large internal distances between educational centres in particular, can affect the ease and the cost of getting groups of teachers and industrialists together for syllabus preparation and revision, for the moderation of examination papers and for the co-ordination of markers. Not only are the direct costs of travel and accommodation increased by the distance between centres, but the additional time taken by the skilled manpower concerned may be a hidden cost in relation to their primary employment. In other words the costs of carrying out the normal activities of examining can be extremely high in developing countries.

98. Internal distances and poor communications can also make the distribution of examination papers a very uncertain business. This is particularly serious if, for reasons of security, it is necessary for all the examination candidates to sit the same examination on the same day. Less serious, but still inconvenient, is the return of scripts for marking.

Cultural Differences

99. The culture of a country will affect both the validity of the syllabus and of the examination paper itself. The extent to which this happens will vary according to the extent to which the subject matter is culture-free and with the mode of examination. These cultural differences are not only as between the developing country and the UK but between one developing country and another, and, if based on language, may be between different communities within the same country.

100. Commercial examinations are most dependent on aspects of local culture. Laws and customs governing commercial transactions are likely to be specific to a particular country or community. Questions involving currency are unlikely to be 'exportable'. Where there is an oral requirement (as in shorthand examinations), if the dictated passage is given a different inflexion from that to which the students are accustomed, the examination will not be valid and the results are likely to be very poor.

101. At first sight it might appear that technology is culture free. Ohms Law is Ohms Law the world over, as is any chemical substance. A machine does not operate differently because of the culture of the person who

presses a switch. In practice, however, there are a number of differences, which can be classified as cultural, between one country and another. For example the standards of UK examinations in electrical installation are related to an industrial agreement between employer and employee organisations, and the content is based on regulations which have not necessarily been adopted in all countries. Skills can be grouped differently depending on the way in which industry has been developed locally. Again, in the UK it has been extremely difficult to develop a cadre of electro-mechanical craftsmen because of industrial relation difficulties but this problem may not arise in many developing countries.

102. A more general cultural difference which may have some effect on the provision of examinations and qualifications is the position of an individual as a member of his or her family and of society as a whole. One way in which this manifests itself in some cultures is the pressures on the individual to try for the highest possible qualification even where there is no chance of success. Unless there is very strict control of entry to examinations (which in itself may cause conflict) this can lead to appallingly high failure rates which may well be falsely attributed to other causes.

103. An obvious major cultural difference is language. If it is decided that any level of examination should be held in a language other than English there are immediately a number of problems. The first is that the local country is dependent on its own resources for the setting and marking of papers and the determination of standards. The second is that the qualification will not easily be recognised for progression to higher courses in another country. A third, rather more subtle, problem is that much of the hard professional investigation into examinations has been done in English speaking countries or those which speak other European languages. How far some of the conclusions will be valid for examinations taken in other languages is difficult to gauge. Despite these problems there may well be very good reasons for a country to decide that its craft qualifications, for example, should be based on the local language as very often this will be the language in which work is conducted.

Opportunities for Individuals

104. As societies develop economically there are increasing opportunities for local people to obtain well-paid and responsible jobs in commerce and industry; and as societies develop educationally the education system provides chances for individuals to match their attainments to the job opportunities available. It is difficult, however, in a rapidly developing country, for there to be a reasonable balance at any one time between the job opportunities and the people available to fill them, and this in its turn creates problems for technical and commercial qualifications and examinations. These problems are at their worst when there are fewer good jobs than there are local people qualified to fill them.

105. A developing country has to decide whether it should aim only to have as many qualified people as it can absorb within its own industrial and commercial sectors, or whether it should allow any individual to develop or extend his or her capability to the maximum. In the first case a country can find itself with a lack of skilled manpower (with a consequent need to rely on expatriates) if there is an unexpected surge in development. In the second case it risks educating and training a frustrated group of people who cannot obtain work consistent with their abilities. The decision a country takes may well affect its attitude to independent colleges, especially in the commercial field and to the extent to which it encourages, tolerates or prevents individual candidates from entering examinations from outside bodies or as external candidates in any national examination system.

106. There can equally be problems for individuals, especially when a qualification is important for getting a job and if there is a pressure of younger age groups pushing up. In these circumstances if a student does not pass his examination and get a qualification in his year of opportunity he may have lost his chance forever because that chance has to be given to people in the next age group. This can increase the pressure on students to adopt illicit methods to achieve success in examinations in order to obtain employment in a highly competitive job market and in turn this creates greater security problems. These problems can affect the way in which students prepare themselves for examinations and their attitudes to the examination paper, examination administration, the examining body and the qualification for which they are striving.

Resources

107. Any developing country has many calls on scarce resources and will have to decide how much it can spend on a comparatively minor activity, although it can have far-reaching results in the eventual quality of the technical and commercial manpower of the country.

108. As the analysis of operational requirements (paragraphs 28-72) shows, good examinations need trained and competent personnel for the complex range of activities involved. Human resources used for these activities may be at the expense of more immediate gains for the country concerned.

109. Equally, examinations are costly in monetary terms whether they are set locally or outside the country. The internal costs of running a special system for comparatively few candidates can be very high. The unit costs per paper written are often likely to be higher than the fee paid to an outside body, even though the salary rates in the country concerned may be far less than they are in, say, the UK. However, an additional cost of using outside examinations is air mail postage or air freight, which is becoming increasingly necessary as carriage by sea becomes slower and less reliable.

110. This absolute cost has to be weighed against the use of foreign exchange for paying candidate fees to outside examining bodies. Although these may be fairly small in relation to other demands on foreign exchange, they can be sufficiently serious if foreign exchange has to be very tightly controlled. They will be particularly serious if students are able to enter outside examinations as external candidates, unless the national government is able to find a means of setting a limit on those who may enter.

Particular Problems of Small States

111. Many of these problems associated with development are ones which are likely to be solved by process of time once a more advanced stage of development has been achieved. In small states, however, the same problems are likely to remain for ever. Thus while a country at an early stage of development may only require a small number of, say, electricians, it can look forward to the time when its requirements will be able to support a reasonable series of electrical craft courses, and perhaps even viable numbers for annual examinations. A small state, however, can never look forward to having enough to form a viable class in a college; and the same applies to most other trades. Nevertheless, a small country still requires builders, plumbers, electricians, motor mechanics, typists, book-keepers, and a few librarians, and the problem of providing a technical or commercial education, and in particular examinations and qualifications for these, are considerable.

112. Cultural factors described in paragraphs 99-103 are also exacerbated by the smallness of a state. Many small countries have their own distinctive culture which they will find hard to maintain if all their technical education is borrowed from elsewhere, and yet it is not likely to be possible for any small state to run its own completely separate examinations. A small state will probably have to adopt standards from outside.

113. The problems associated with opportunities for individuals (paragraphs 104-106) are also applicable to small states and are sometimes made worse by the 'unforgiving nature' of some small communities. If everyone knows everyone else, teachers may be unwilling to act as pass/fail arbiters in qualifications. If the teacher once fails someone he may make an enemy of the whole family for the rest of his life.

114. Small states, therefore, are likely to have to look outside their borders for examinations and perhaps for qualifications, and in many cases for specialist or advanced courses. This means that unless ways can be found to meet their particular local needs, their requirements may well be swamped by those of the larger populations served by the outside examining body.

Summary

115. The analysis in this section has covered a range of factors which can affect the provision of technical and commercial examinations, and the award of qualifications, in developing countries and the type of problems they can cause. It is unlikely that all these problems will apply to all countries, or even to any one country at all times. The particular mix of problems which an individual country has to face at any stage of development will probably be unique to itself. However, within that mix the individual problems are probably being met, or will already have been met, in other Commonwealth countries. It is likely, therefore, that the basis exists for a co-operative approach to their solution.

COMPARISON BETWEEN ACADEMIC
AND VOCATIONAL QUALIFICATIONS

116. One of the options open to a developing country (which has been followed in a number of cases) is to establish a local organisation for academic qualifications and examinations, and to give it responsibility for vocational ones as well. While the advantages or disadvantages of this course of action in any country will depend on local circumstances, it is possible to make some general observations on the differences between academic and vocational qualifications and examinations which may help illuminate the issues to be faced.

117. The starting point is that made in paragraph 31 of this part of the report: that vocational qualifications and examinations have to meet the needs of employment, and that such needs provide a reference point external to any educational system. Although academic qualifications may also have a relationship to employment opportunities, they provide evidence of a more general standard of educational achievement rather than being related to a specific job or trade, so the external reference point is weaker.

118. Industrial and commercial requirements put additional emphasis on the acceptability of, and accountability for, standards of qualification, on the validity of syllabuses and the avoidance of harmful side effects (which could, for example, affect industrial performance) without reducing the need for validity and reliability of testing, fairness and comparability when awarding qualifications, or efficiency of operation. As a result vocational qualifications and examinations need a higher level of resources as the staff not only have to operate the system but also have constantly to keep in touch with developments in commerce and industry to ensure that the qualifications and examinations continue to meet the needs of employment.

119. At the same time academic examinations generally attract a large number of candidates in a comparatively small number of subjects, the content of which seldom changes very greatly and is not much affected by factors related to development, so syllabuses can have a long shelf-life. The capital costs need not be high, the operating costs tend to be low, and a low unit cost per candidate can be achieved. By contrast, technical examinations generally attract a few candidates in a large number of subjects, the content of which needs frequent updating to match changes in technology and in the country's developing economy. Capital costs, operating costs and the unit cost per candidate can all be high.

120. Making both academic and vocational examinations the responsibility of one organisation may enable the (numerically weaker) vocational side to share facilities and resources provided for the stronger academic side. However the greater demands, the higher cost and the comparatively few students on the vocational side may create conflicts of priorities, especially if there is any pressure on the facilities and resources of the organisation.

121. Moreover, the savings available by sharing resources are not necessarily as great as might be supposed. As noted in paragraph 82, operational costs not only include fixed overheads and general operating costs (both of which would be reduced if facilities were shared) but also specific operating costs for individual examinations and the recovery of development costs for specific subjects (both of which would remain constant whether

facilities were shared or not); in many cases the specific costs will be higher than the shared costs.

122. Finally, while academic examinations can be matched to the local school curriculum, in any but the largest developing country there is likely to be a residue of vocational subjects which cannot be taught or examined locally. In many specialisms the annual employment requirement is likely to be too few to support a course, and specialist teachers and examiners may not be available. Students of such specialisations may have to go abroad to study, or to work on their own through some form of distance learning. If any qualification is to be awarded, it has to be an outside one, and this may make it necessary for the country to retain some links with an outside examining body.

PART 3

THE PRESENT POSITION

THE DEVELOPING COUNTRIES

The General Position

123. The general position appears to be as follows:

- (a) Before independence most Commonwealth states used examinations and qualifications set by UK external examining bodies.
- (b) Since independence most of the larger states have replaced these with national or regional qualifications or examinations.
- (c) Some of the smaller states have replaced them with college qualifications and examinations.
- (d) Most of the smaller states, and at least one larger state, still use UK external qualifications and examinations instead of national or college ones, although a number of such states are now planning to make a change.
- (e) In many states, especially those where the nationals expect to go overseas for employment or advanced education, UK external qualifications and examinations are used in parallel to local ones.
- (f) In some states private colleges in the commercial sector also use UK external qualifications and examinations.
- (g) The qualifications of City and Guilds, Royal Society of Arts, London Chamber of Commerce and Industry and Pitmans are held in high esteem as setting a known international standard.

124. The implication from the replies is that sooner or later any independent country will wish to award its own qualifications. Up to now this has also involved setting the examinations on which the qualification is based. In Part 2 we have shown that there are in fact separate activities of awarding qualifications and of examining, and that these activities require different levels of resources. Later in the report we suggest that there are a number of different options which enable this natural desire to award a national qualification to be met.

125. There is some evidence - anecdotal and in no way conclusive - which suggests that the pattern of qualifications and examinations adopted by a country may be influenced by the background of the technical assistance it has received in establishing its post-independence vocational education system. It seems natural that those involved in technical assistance programmes will make recommendations based on their own experience and expectations, and that as a result there is a diversity of approach in

Commonwealth countries which cannot be explained solely as being due to the size of the country, its stage of development, the length of time it has been independent or its own cultural traditions. Such influence, however, if it has existed, could lead to decisions on qualifications and examinations being made for the wrong reasons.

Outside Examinations

126. Comparison of the questionnaires with the statistics from the UK examining bodies indicates that in quite a few countries outside examinations were being taken in many subjects in which college or national examinations were also being sat. There are several explanations for this:

(a) As indicated by some of the comments in Appendix II students in some institutions who take college or national examinations are also encouraged to take outside examinations if there is a possibility that they may go overseas to study or find employment.

(b) In commercial subjects in particular, in some countries there are a number of private colleges outside the state system and these often make use of outside examinations.

(c) Many of the outside examinations accept entries from 'external candidates', that is those who have not attended a college but who have studied on their own or by correspondence.

127. It is noticeable that the outside examinations which are most frequently used are telecommunications technicians and those in mathematics, accounting and similar subjects, and secretarial and typing. Although there are probably a number of reasons for the continuing popularity of UK examinations in these subjects, it may be significant that they are all modular - that is a candidate can take a single subject examination when it suits him and does not have to take several 'grouped' papers.

128. An analysis of the questionnaire shows that where there is a mixture of local and UK examinations, it is more likely in technical education that the craft level examinations will be local and the technician and higher technician will be outside. This may be due to one or more of the following reasons:

(a) Technicians are more likely to go overseas to continue their studies.

(b) There may be more candidates at craft level, making it more economic to set them for each country.

(c) Craft examinations are more likely to be tied to local needs and practices. Technician examinations, being more theoretical, are more universally applicable.

(d) Craft examinations usually require practical tests or assessment and are therefore difficult to set outside the UK. Technician examinations are usually written papers only, with a few projects.

(e) Because of the practical requirements, UK craft examinations are often barred to overseas external candidates - and this includes not only the genuine externals, but also those at a college whose course has not been approved.

(f) Craft skills may be tested by an industrial training/trade testing organisation local to the country.

(g) At craft level the local language may be used for tuition in preference to English.

129. The questionnaire asked users of 'outside' qualifications to rate them on a scale 5 - 1 according to the extent to which these qualifications matched the requirements of local employment. In virtually all cases commercial qualifications were rated high (5 or 4), and in most cases City and Guilds technical qualifications were also rated 5 or 4. In a number of cases, however, City and Guilds qualifications were rated 3 ('Syllabus partly matches employment requirements'). The main reason appeared to be a correlation between a fairly low rating for a set of qualifications and a poor result in the examinations, but because of the grouping of subjects in the questionnaire it was impossible to be sure about this. Curiously enough the very much worse results in commercial examinations did not lead (except in one case) to low ratings or any adverse comments.

130. The main reasons given for using outside examinations and qualifications (see Appendix II), apart from where they were being used pending the development of local examinations, stressed

(a) their recognition as denoting an acceptable standard of employment by indigenous employers and those in other countries;

(b) their use as entry or exempting qualifications for further study overseas;

(c) their international reputation.

These points were made so frequently and so strongly from so many different parts of the Commonwealth that they must be given considerable weight.

Regional Qualifications and Examinations

131. There was little or no evidence from the questionnaires of the efficiency or appropriateness of regional examinations. The information obtained from the two existing regional councils which conduct vocational examinations is contained in paragraphs 174-190.

National and College Qualifications and Examinations

132. Equally there was little or no evidence on the quality of national and college qualifications and examinations. The Department of Education of one country voluntarily provided ratings for its national examinations as 3 ('Syllabus partly meets employment requirements'), and commented that the syllabuses were to be revised in a modular format to meet the needs of local industry. There were also hints in some of the comments (quoted in Appendix II) of difficulties in establishing the reputation of local qualifications.

133. Nevertheless, the wording of the Report of the Accra Conference, quoted in paragraph 2, suggests that problems are being met and it seems likely that these are due to the inherent problems of examining exacerbated by some of the particular problems of developing countries.

THE MAIN UK EXAMINING BODIES OPERATING IN THE COMMONWEALTH

134. The UK examining bodies with large numbers of overseas candidates are the City and Guilds of London Institute for technical subjects, and the London Chamber of Commerce and Industry, the Royal Society of Arts and Pitmans Examination Institute for commercial subjects. The first three are autonomous educational charities, while Pitmans is a branch of a private company.

135. This autonomous charitable status is important in a number of ways. The examining bodies are not part of the British government structure. While they hope to work closely with government departments and local authorities, they value their independence and their ability to determine their own policies. Apart from minor government grants for specific purposes they are self-financing, largely from candidate fees. Because they are educational charities they cannot distribute profits and, apart from keeping a prudent level of reserves, they put any surplus into improving their services, or try to hold down their fee levels.

136. To stay in business, these independent examining bodies have to balance their budgets each year by keeping their development and operating costs within their fee and other income. Although they may use quite complex differential fee systems, the general practice is to average their costs over all subjects and base their differentials on the level of the subject and the number of question papers. In forward planning, however, they try to avoid developing examinations which will attract only a very few candidates, as these raise the total annual costs and, as explained in paragraph 82 lead to the small subjects being subsidised by the candidates from the larger subjects.

137. Conversely, because their fees for overseas candidates are based on their total candidate entry, the unit cost per candidate is much lower than it would have been if it had been based on the overseas candidates alone. This applies even to the special examinations for overseas offered by City and Guilds, as the development cost of these have been covered by a specific government grant.

138. Because of their need to be financially viable, until recently these examining bodies have tended to respond to outside initiatives rather than take major initiatives on their own to develop new schemes, although they have done so in the case of examination methodology (e.g. City and Guilds with multiple-choice testing).

139. Although Pitmans operates as a branch of a private, profit-making company and may have a different approach to capital and operating costs, the study investigators found that the company ethos was the same as that of the educational charities: to provide the best possible service at the lowest possible candidate fee. Pitmans has also made a special contribution to examination methodology by being able to provide examinations at short notice on request, and by reporting on the particular weakness of candidates who fail.

Other UK award-making bodies in the Commonwealth

140. A number of other UK award-making bodies operate in the developing Commonwealth or may do so in the future. This study is not concerned with professional institutions or school examining bodies, some of which

overlap into the commercial field. Indeed only a minor use of these bodies was reported in the questionnaire responses. Other bodies include:

(a) the Union of Lancashire and Cheshire Institutes (North West Regional Advisory Council for Further Education) which has traditionally examined in parts of the Caribbean;

(b) the Technician Education Council (TEC) which has extended its system of validation to Hong Kong, and which in the UK is replacing all City and Guilds technician examinations with its awards;

(c) the Business Education Council (BEC) which in the UK is overlapping into the fields traditionally covered by the LCCI, RSA and Pitmans, and which now offers a service overseas.

141. The Union of Lancashire and Cheshire Institutes is now part of the North-West Regional Advisory Council, an association of local education authorities. Although its status is different, its examining function is similar to that already described.

142. The Technician Education Council (TEC) and the Business Education Council (BEC) were established by the UK government in 1973 and 1974. Their chairmen and members are appointed by the UK Secretary of State for Education and Science. TEC is still in receipt of a government deficiency grant, but BEC is now financially self-supporting. Both are educational charities and, despite their relationship with the Department of Education and Science, operate with complete freedom from government interference. Both originally contracted for administrative services from City and Guilds, but are completely independent of the Institute and follow their own educational policies.

143. TEC has established a modular system which will eventually cover all technician operations. The modules (called units) are designed as part of courses (called programmes) but can be taken individually. TEC operates, and maintains its standards, through a complex system of validation (see paragraphs 69-71). BEC's system, although modular in concept, has a greater emphasis than TEC's on the inter-relationship of the modules and is therefore less flexible. BEC operates on a combination of external examinations and validation.

Relationships of the Award-making Examining Bodies with Developing Countries

144. Apart from the involvement of City and Guilds and the RSA with the development of regional examining councils, and the more recent involvement of City and Guilds in helping to develop a national examinations system in one country, the relationship of the main UK examining bodies with the developing countries of the Commonwealth does not appear to have changed significantly since independence. There are probably three main reasons for this:

(a) The examining bodies have traditionally examined in many countries, developing and developed, which are not part of the Commonwealth and which were never part of the British Empire. Their operating methods, and

often their statistics, classify examination centres as 'Home' and 'Overseas' and it makes no difference to their administrative procedures whether a centre is in a Commonwealth or a foreign country, or in a country which is independent or one subject to colonial rule. Their eventual clients are the individual candidates who take the examination and, if successful, receive their awards.

(b) Their involvement, at British government request, in the development of regional examining councils appears to have suggested that these might be models of eventual universal application, and may have diverted their attention from other possible relationships.

(c) The financial realities of examining as outlined in paragraphs 73-88 and 136-138 have inhibited them from taking initiatives which could become costly and have reinforced them as responsive rather than initiating bodies.

145. The City and Guilds has been under greater pressure to be responsive and has been able to prepare special schemes for minority requirements in a few Commonwealth countries. But its special arrangements outside the Commonwealth have been more radical, and its development of schemes specially designed for the requirements of 'overseas countries' (funded by the British government) was not specifically aimed at Commonwealth countries, although because of the use of English they provide the most candidates. Here again, the methodology was derived from that traditionally used for UK-based development work, and most schemes were not related to the needs of an individual country.

146. More recently, however, the examining bodies have been prepared to take new initiatives in the UK and to develop and adopt new ideas and approaches. In discussion all their senior officers expressed themselves willing to consider the development of new relationships with developing Commonwealth countries, although it would probably be appropriate that the initiative should come from the Commonwealth, or from individual countries. Possible approaches to new relationships are considered in paragraphs 224-237.

147. The position of BEC and TEC is rather different. Their first priority has been to rationalize their fields of responsibility in the UK. In doing so they have adopted systems which, in their different ways, have many attractive features. If their systems were to operate overseas in the same way as in the UK, then the overseas colleges would have to accept very rigorous systems of validation and monitoring. While this may be acceptable in a colonial situation, it may not be appropriate in an independent country. Possibly ways could be found to integrate the desirable features of the BEC and TEC systems with any new relationships developed by the traditional examining bodies.

Areas of Concern for the UK external examining bodies

148. Discussions with the senior officers of the UK external examining bodies revealed areas of concern, which are worth setting out as they may provide insights into the problems of the developing countries themselves and certainly need to be taken into account in any new relationships.

High failure rates

149. The most serious problem is that of high failure rates. The study analysed the City and Guilds, RSA and LCCI pass rates for 1977/78 by geographical region, and by level of course and subject groups as defined in the questionnaire. Even allowing for the distortions caused by amalgamating the results of individual examinations into subject groups and different centres into regional totals, the picture is not a happy one. Considering groups of 100 or more candidates (on the basis that there could be much greater distortions in smaller groups), then in the developing Commonwealth as a whole, the study identified 63 groups of over 100 candidates in technical subjects and 49 in mathematics and commercial subjects. An analysis of these results shows that less than 50% of the candidates passed in 28 of the technical groups, and 41 of the mathematics/commerce groups (i.e. in mathematics and commerce there were only 8 groups in which more than half of the candidates passed).

150. A further breakdown of these results into the three main levels of examinations revealed marked differences in success rates:

higher technician and stage III advanced level

(a) more than 50% of candidates passed in:

- (i) 2 technical groups
- (ii) 3 mathematics/commerce groups

(b) less than 50% of candidates passed in:

- (i) 5 technical groups
- (ii) 10 mathematics/commerce groups

technician and stage II intermediate level

(c) more than 50% of candidates passed in:

- (i) 11 technical groups
- (ii) 3 mathematics/commerce groups

(d) less than 50% of candidates passed in:

- (i) 13 technical groups
- (ii) 18 mathematics/commerce groups

craft and stage I elementary level

(e) more than 50% of candidates passed in:

- (i) 21 technical groups
- (ii) 2 mathematics/commerce groups

(f) less than 50% of candidates passed in:

- (i) 11 technical groups
- (ii) 13 mathematics/commerce groups.

151. One possible explanation of the differences between different levels is that in all the groups, except the craft group in technical subjects (which had the best results), it is generally possible for external candidates (i.e. those who did not attend a course) to enter for the examination, and that many did so who were insufficiently prepared. The extremely poor performance in commercial subjects may be partly due to their being more culture-dependant than technical subjects (see paragraphs 99-103). However, in the questionnaire responses, these subjects were normally rated as 'Syllabus completely matches employment requirements' or 'Syllabus matches employment requirements with a few exceptions'. It is unlikely that such ratings would have been given if the educational establishments had suffered enormous failure rates. So the inference is that the failures either come from colleges which did not return the questionnaire or were external students. There is more than a suspicion that in some countries many commercial candidates enter the examinations unprepared, and go on taking the examinations until they eventually pass. But this is still largely speculation and there is no completely authoritative explanation of these high failure rates.

152. In general, examining bodies do not like high failure rates. They do not help the reputation of the body and, far from being evidence that the standard is high they are more likely to be evidence that the examination is inappropriate. 'No hope' candidates waste the time and patience of busy examiners. It is sometimes alleged that examining bodies make money out of fees for candidates resitting the examinations, but the experience of City and Guilds in the 1950s and 1960s was that examinations with good pass rates attracted more candidates and those with very poor pass rates eventually deterred entrants.

153. This whole question of low pass rates is one which requires a greater depth of investigation than the resources of this study have permitted.

Appropriateness of Standards

154. Where UK examinations are also taken overseas the standard set is that appropriate to the UK candidates. Thus City and Guilds normally determines the pass mark of its examination papers following a statistical analysis of the UK results, both because this is the standard aimed at and because if the results from overseas had to be marked before the pass mark was established there would be a greater delay before results were issued. Other bodies, which may adopt different procedures, use the same principle.

155. Clearly this single standard helps enhance the international standing of the qualification, but the examining bodies are concerned whether a UK standard is always appropriate for a developing country; does it indeed contribute to the high failure rates? On the other hand, a differential standard, adopted for some countries by one of the UK schools examining boards, may be the wrong approach for work-related subjects; indeed unless very carefully applied it could have serious safety consequences both for the 'worker' and the ultimate user of, say, a repaired motor vehicle.

156. In some commercial subjects, and also in English language examinations, the structure of the qualifications and the careful gradations for each level of award, helps to overcome the problem by enabling candidates to take examinations at the level they have reached which may differ from subject to subject. In the technical field, the modular examinations in Telecommunications, and the step by step approach of the North West Regional Advisory Council, perhaps in combination with City and Guilds examinations in the same subject, also eases the problem.

157. Nevertheless, the issue as to whether there should be differential standards remains a fundamental one of policy, which the UK examining bodies may be able to help with by modular structures, but which they cannot (indeed do not feel that they should) solve unilaterally.

Appropriateness of Content

158. The UK examining bodies are well aware that the content of many of their syllabuses, and hence of their question papers, is not appropriate to the local climate, culture, stage of development or employment conditions of their overseas clients. They are concerned about the effect on the validity of the testing for their overseas candidates. Again they wonder how far inappropriate content may be contributing to the high failure rates.

159. This is a problem which the examining bodies have found easier to identify than to solve. The economics of development work and examinations and their own financial arrangements preclude a whole series of one-off special examinations unless they were to receive grants or subsidies for this work. Moreover, as City and Guilds has found, a scheme developed for all overseas countries may be no more appropriate in content for some of them than one developed for students in the UK.

160. In practice, there have been four lines of approach to this problem:

(a) In a few instances City and Guilds (with a grant from the UK Ministry of Overseas Development) has prepared special schemes for some personnel in the mining industries of Ghana and Uganda and map production officers in Sri Lanka. In some such cases, City and Guilds has moved from an external mode of examining to one involving simple validation of college-set papers.

(b) In another case Basic Cookery (Overseas) - the City and Guilds examination has three components: one centrally set and marked objective test, one locally set question paper on 'Local Practice', and a college-based Practical Work Assessment.

(c) City and Guilds has also developed joint approaches with a number of different organisations, the collaboration being recognised in the wording of the Certificate awarded. So far this approach has mostly been adopted with organisations in the UK, or as a stage in the developing relationship with the West African Examinations Council. Outside the Commonwealth, a joint venture with the Gulf Technical College, Bahrain, has led to the validation by City and Guilds of locally-devised Technician Diplomas in Building Management, in Civil Engineering and in Mechanical and Electrical Engineering. Appendix IV illustrates the range of ways in which such collaboration between City and Guilds and another organisation is recognised in the Certificates awarded.

(d) An entirely different approach depends on the skill and sensitivity of examiners in setting and marking papers which they know will be taken by examinees in a large number of countries with widely varying local conditions. Very careful wording of questions is required, and the

examiner has to know when to accept (or reject) what to him may seem oddities of language or spelling, but which would be acceptable locally and which may have no bearing on the correctness of the answer.

161. The first three approaches so far affect only a small number of overseas candidates, and the fourth may be over-dependent on the experience and attitudes of individual examiners. Nevertheless all four are worth further study and possible systematic development.

Lack of Contact with Overseas Clients

162. In the UK difficulties between the examining body and a college can be solved rapidly by a telephone call, an exchange of letters or a visit. College staff and industrialists serve on committees or become examiners. The examining bodies promote, or contribute to, conferences of teachers. There is thus a constant interchange of views, ideas and information.

163. Officers of the UK examining bodies frequently tour overseas to discuss problems or developments with their clients. Their commitment to this time-consuming and expensive activity has been considerable. But the frequency of a visit from any one body to any particular country is not great, and it is not easy to find time to visit the smaller or more remote educational establishments. The examining bodies are also always ready to welcome visitors from overseas, but those who come are not always in a position to convey feedback concerning the UK examinations in their country or in a particular establishment.

164. The examining bodies supplement these face-to-face contacts with broadsheets, journals or other publications, but these are one way methods of communication. If the UK examining bodies are to continue to provide a service overseas, they need to receive more communications from their overseas clients.

165. The problem is the size of the world. However much they want to do so, the UK examining bodies will never be able to have the same face-to-face contacts overseas as they can in the UK. But perhaps modern developments in electronic communications could be used systematically to improve contacts.

Postal Problems

166. The UK examining bodies rely heavily on the postal services for contact with their overseas clients. There is a sequence:

- (a) Syllabus pamphlets and stationery from UK to overseas
- (b) Examination entries from overseas to UK
- (c) Question papers from UK to overseas
- (d) Scripts for marking from overseas to UK
- (e) Results and certificates from UK to overseas.

167. The withdrawal of many shipping services has led to a concentration on airmail - and in many cases air freight - with its consequent higher costs

for both the examining body and its clients. Air services and internal postal services appear to be less reliable now than some years ago (this is a world-wide phenomenon affecting developed and developing countries alike), and this has administrative implications where examinations are scheduled to be taken on a particular date.

Security

168. Examining bodies are always concerned about the security of their question papers and of candidates' scripts. They take precautions to ensure that no candidate is able to have access to the paper, or otherwise learn of its contents, before the examination; or can alter his script after the examination is over; or can cheat in the examination room; or can be impersonated by someone with a better knowledge of the subject; or can obtain a forged certificate. If it is known that people are able to gain awards through such illicit methods, not only is the credibility of the examining body itself damaged but the certificates gained by honest candidates are devalued.

169. In the UK the examining bodies are able to supervise and inspect whatever security measures they impose. Their ability to do so, and their close contact with the colleges, means that they seldom need to take any special action. They are not able to exercise this supervision overseas, and so rely on specially appointed agents, or ministries of education, or in some cases colleges with which they have made special arrangements. As in the UK, in examinations with long written answers, there is a subtle back up to security in that an experienced examiner can quickly detect answers from a batch of candidates that are so similar as to indicate possible collusion.

170. In general, therefore, the examining bodies are satisfied with existing arrangements, but their concern for security is an inhibiting factor for a number of developments:

- (a) modern techniques (e.g. multiple-choice) are less easy to keep secure than traditional examinations with a written answer
- (b) security becomes more important if the questions are to be banked for re-use
- (c) a greater assurance of security is required for college-based examinations, especially where these involve the local marking of practical work
- (d) the extension of the responsibility for security of examinations beyond the ministries of education, local agents and a few selected colleges would be difficult to monitor
- (e) possible future techniques, perhaps involving electronic data transmission, are not likely to be kept secure by traditional methods
- (f) similarly, more individualized and more rapid testing (e.g. by the use of college-based marking machines) would also need new approaches to security.

Uncertainty about the Future

171. Although the number of overseas candidates examined by the UK examining bodies has grown year by year over the past decade, they are becoming increasingly concerned about the future. A sudden change in educational policy in an overseas country, or an urgent need to preserve foreign exchange, may quite rapidly and with virtually no notice, end a long standing arrangement for providing examinations. Indeed, the entries may just cease without any prior warning.

172. This uncertainty inhibits forward planning and makes it dangerous (given their method of financing) for the UK external examining bodies to invest large sums of capital to match more closely the needs of overseas countries. In technician education in particular, this will become serious as City and Guilds systematically withdraws its 'home' examinations as they are replaced by TEC schemes. In some cases the residual overseas candidates will be too few to make it worthwhile (with the normal method of financing) to run the examinations for them alone. But even where the numbers are reasonably large, the updating of the examination syllabuses as technology changes will involve City and Guilds in risks which it has not previously had to face.

Summary

173. The UK examining bodies have served the developing world well, and deserve the sort of comments made about them in the extracts quoted in Appendix II. The use of UK examinations has enabled developing countries to work to known and respected standards at low candidate unit costs. However, changes in the developing countries of the Commonwealth and in the UK make it necessary that, if the UK examining bodies are to continue to serve their Commonwealth clients, there should also be changes in the traditional relationships. The independence of these bodies from government enhances their ability to make the necessary changes, but the initiatives may well have to come from the Commonwealth countries themselves. The UK examination bodies all expressed their willingness to consider new relationships.

THE REGIONAL EXAMINING COUNCILS

174. The study included contact with two of the regional examining bodies: a visit was made by a staff member of the Commonwealth Secretariat to the East African Examinations Council office in Nairobi, and information was obtained from the London office of the West African Examinations Council, including access to the Annual Report for the year ending 31 March 1978, and to some of the technical syllabuses.

The West African Examinations Council

175. The West African Examinations Council was formed in 1952 to provide school examinations in The Gambia, Ghana (then the Gold Coast), Nigeria and Sierra Leone. In 1974 Liberia became a full member of the Council.

176. In 1964, following a 1960 report on Post-School Certificate and Higher Education in Nigeria, the Council began to take a serious interest in technical education. So far, however, its involvement in technical and commercial examinations for the other members of the Council has been confined to handling entries for City and Guilds and RSA examinations in The Gambia and Sierra Leone. Indeed in 1978 there were proposals that a newly formed National Board for Technical Examinations should take over from WAEC the conduct of technical and commercial examinations in Nigeria itself. However, early in 1980 it was decided by the Nigerian Government that the WAEC should retain examining functions and that the National Board should concentrate on the general development of technical and commercial education.

177. There are great differences in size between vocational and school examination entries. In 1977 in Nigeria there were 12700 candidates for technical examinations and 27700 for commercial examinations, while the total number of all candidates examined in all the member countries was one million two hundred thousand, the great majority from schools.

178. These large numbers of school candidates have made it possible, indeed essential, for the WAEC to develop very strong and highly trained teams of staff, backed up by data processing and optical mark reading equipment, at its main centres. The resources available certainly match up to those referred to in paragraphs 43, 64 and 68 of this report. The programme for test development and research could be the envy of many examining bodies world-wide. The 1977/78 Annual Report lists 180 senior staff by name. Even in 1977 its annual income was nearly £8.5 million (Sterling).

179. In 1966 WAEC decided to exercise its responsibility for technical and commercial examinations in Nigeria by taking over those offered by the UK awarding bodies. This decision was made with the consent, cooperation and goodwill of these bodies, following a meeting in 1965 in which they were represented. The transfer was planned to take place in four sequential stages:

1. Special Nigerian syllabuses were prepared in collaboration with City and Guilds and RSA, who for a time continued to approve them.
2. Nigerian chief and assistant examiners were trained by teams of examiners from the UK (this was funded by the British Government).

3. Examinations were conducted jointly by the WAEC and the UK bodies, with Certificates issued under their joint auspices.

4. Finally, it was intended that the WAEC would conduct its own examinations and award its own Certificates.

The plan envisaged all four stages being complete by 1978, but for various reasons the transfer was slowed down, and has not yet been completed.

180. As an example of the continuing collaboration, and of its scale, in 1980 13 UK Chief Examiners, 17 Nigerian Chief Examiners and 135 Assistant Examiners will attend a two weeks training course in Nigeria, under the joint auspices of the WAEC and City and Guilds. A similar training session involving the RSA was held in 1979.

181. The 1977/78 Annual Report of the WAEC, as well as recording the Council's continued growth and success, was also frank about some of the problems it had to overcome in the year under review. These problems, and the solutions adopted, although largely relating to school examinations, illustrate some of the difficulties which may be encountered in other countries, perhaps where there is a less powerful and experienced body than the WAEC to handle them.

182. The WAEC has reached the stage of development where there are pressures from the member countries to decentralize as far as possible the operations to national offices staffed by local nationals. It has also reached the size where a degree of decentralization helps efficiency. Nevertheless the 1977/78 report indicates that decentralization is not without its attendant problems, particularly in respect to staff matters.

183. The report also shows how an examining body has very special staff training problems which cannot readily be met by generalised management training courses, how (despite the highly specialized nature of its work) it can lose key staff to other organisations, and how it may have difficulty in recruiting at some levels, especially in data processing.

184. Other problems quoted included technical difficulties with imported equipment and with power supply, and arrangements for the security and printing of question papers.

185. Because the transfer of examinations from City and Guilds and RSA to the WAEC is not complete, it would be premature to do more than touch on the important question of whether the balance of advantage lies in associating technical and commercial examinations with school examinations or keeping them separate. Clearly the WAEC has at its command immense resources, a strong management and administration and considerable specialist skills in the techniques of testing. However, the method and phasing of the transfer seems to have led to administrative, rather than specialist, resources being applied to technical and commercial examinations; for example up to 1978 there was no research on them and the technical syllabuses seen during the study had not been altered very much from their UK originals to take account of local needs. Once the transfer is complete this may change, but the doubt remains whether, given the sort of imbalance in candidate populations described in paragraph 177, even the WAEC can afford to give much priority to the special needs of vocational examinations, which (as shown in paragraphs 116-122) are different from those of school examinations. In other, smaller, countries with less resources for a schools examining body than are available to the WAEC, the problem of priorities for scarce specialist resources could be even more acute.

The East African Examinations Council

186. The East African Examinations Council was formed, also as a schools examining body, in 1968. In 1972 it took over the technical and commercial examinations being offered in Kenya and Uganda by City and Guilds and the RSA. The head office of EAEC is in Kampala with a Regional Office in Nairobi. As with WAEC, national offices are manned by local nationals. Figures for school candidates are not readily available but there are about 6000 technical subject entries and 5000 commercial subject entries.

187. From May 1980, the Council will have an ICL computer in the Nairobi office; hitherto it has bought computer time from bureaus. In general its resources are on a smaller scale than the WAEC.

188. It is understood that the Kenya government may shortly establish a National Examinations Council to be responsible for the schools and vocational examinations in Kenya.

189. Although the examiner training was carried out in the early years in conjunction with City and Guilds and the RSA, it is now entirely carried out by the EAEC, and the transfer of examinations has been much more rapid than in Nigeria.

Conclusions

190. This brief survey of the WAEC and EAEC raises two important issues: do they provide models of interstate co-operation in vocational examining which should be encouraged elsewhere in the Commonwealth? And do the advantages of combining school and vocational examinations outweigh the disadvantages? It does appear that the difficulties of maintaining regional co-operation by a joint examining institution are very great. In East Africa the joint body seems about to be replaced by national ones, and in West Africa the regional body has never run vocational examinations in more than one of the member countries. The experience of these two bodies is therefore not encouraging in the vocational field at least. The resources available to the study and the stage reached in West Africa in particular make it difficult to reach a conclusion on the balance of advantage or disadvantage on combining school and vocational examinations. This is a matter which would merit further study; there might, for example, be half-way stages between complete integration and complete separation, and some of the other activities of the WAEC (not reported here) might provide a model of how this might be achieved.

PART 4

TOWARDS SOLUTIONS

A PROBLEM OF BALANCE

A Conflict of Aims

191. It is possible to define nine major aims in this field which can apply to developing countries. Any system of technical and commercial qualifications and examinations should:

1. contribute to the meeting of present and foreseeable manpower needs;
2. enable individuals to achieve their personal career objectives;
3. provide national qualifications to meet national aspirations;
4. award qualifications which are recognised by employers and educational institutions in the developing country and overseas;
5. be sufficiently local and flexible to meet changing local needs;
6. give certainty and continuity of standards;
7. provide valid and reliable measurements of human performance;
8. reduce student wastage by eliminating excessive failure rates;
9. not itself consume an unacceptable proportion of financial and manpower resources.

192. There is a possible conflict between aims 1 and 2; between aims 3 and 4; between aims 5 and 6; and perhaps between aims 7 and 8. If aim 9 is given priority, it could force a reduction of emphasis on other desirable aims and prevent the solution of conflicting aims; for example, if national and international examinations are used, then the conflict between aims 3 and 4 disappears, but the costs of the examination system will increase.

193. Within this conflict of policy aims it is, of course, the responsibility of each country to determine which aims should have priority at any given time. The dilemma for a developing country at present is that there appear to be only two viable solutions: a national system of qualifications, examinations and syllabuses, or use of the sort of external system provided by the UK and regional examining bodies. In theory there can also be college systems, but so far these have tended to become national. In practice there are often dual systems, but these also appear to be a stage on the road to a national system.

A National System

194. If a country opts for a wholly national system, it is likely to be able to

- (a) match it to present and foreseeable manpower needs (Aim 1)
- (b) provide national qualifications to meet national aspirations (Aim 3)
- (c) be sufficiently local and flexible to meet changing local needs (Aim 5)

and, depending on the system it adopts, may be able to

- (d) enable individuals to achieve their career objectives (Aim 2)
- (e) provide certainty and continuity of standards (Aim 6)
- (f) reduce student wastage by eliminating excessive failure rates (Aim 8)
- (g) provide valid and reliable measurements of human performance if it has a large enough student population in the various subject areas (Aim 7).

195. The main disadvantage of a national system, is that if it meets all the aims in paragraph 194 the cost will be extremely high. It will also be unlikely to provide qualifications which are recognised by employers and educational institutions in other countries. It is also likely that a purely national system will gradually, but inevitably, move away from the international syllabuses, which will mean that text books and other learning material based on them will no longer be appropriate - or at best only partly so. This does not matter if a country is sufficiently large and developed to support its own textbook publishing, but it is an important factor for consideration in all but the largest countries. Medium size and small states also have to be concerned about the effect of low examination entries on the reliability of measurement and attainment. Finally, it is possible that a country adopting a purely national system may become isolated from new ideas and developments, not only in the technological content of syllabuses, but in examinations and indeed in technical education as a whole. Again this is less likely if the country has a well-developed industrial base and strong university faculties in technological and business studies.

An outside system

196. If a developing country opts for an outside system of qualifications and examinations it is likely to be able to:

- (a) enable individuals to achieve their personal career objectives (Aim 2)
- (b) provide qualifications which are recognised by employers and educational institutions both in the developing country and overseas (Aim 4)

(c) have certainty and continuity of standards

(Aim 5)

(d) use a system which does not place too heavy a burden on its financial and manpower resources

(Aim 9).

To some extent such a system may contribute to the meeting of present and foreseeable manpower needs (Aim 1), but while its measurements of human performance are likely to be reliable, their validity will be questionable (Aim 7) - although they may be sufficiently valid to be acceptable.

197. The main disadvantages of an outside system are that it does not provide a national qualification, and that it is difficult for it to meet all the changing local needs. As reported earlier, there is also, at present, an extremely high failure rate, but this may partly be due to the lack of preparation (and indeed the opportunity for preparation) for candidates who are not studying at a college.

Resolving the dilemma

198. It thus appears that, unless a developing country is comparatively large and wealthy and at a fairly advanced stage of development, whichever option it chooses - a national system or an outside system - there will be grave disadvantages. This dilemma echoes the extract from the Report of the Seventh Commonwealth Conference which gave rise to this study. But the stark choice between a national system and an outside system is not a logical necessity, but partly a product of historical relationships.

199. Certainly anyone involved with examining has the problem of balancing the four main factors of validity, reliability, efficiency and cost. These factors tend to operate against each other, in the sense that cost-effective measures to improve the validity tend to lower the reliability, while measures to improve the reliability adversely affect either the efficiency or the validity of examinations. There is never a perfect solution, just the best balance for a particular purpose.

200. It is equally true that those responsible for examinations in developing countries (especially the small states) are likely to have the same problem of balance in an exaggerated form. To be valid a syllabus has to reflect the local cultural, geographical and employment factors and the stage of development. Reliability will often be low because of numbers involved in any one occupation are small. Efficiency is more important than in developed countries as the time of both lecturer and student absorbs a greater proportion of the national wealth. Cost can be crucial, in terms of scarce resources of skilled manpower, of money, and of foreign exchange.

201. It is the firm view of the investigators, however, that the apparent dilemma can be resolved and the conflict of policy aims identified in paragraphs 192-197 can be reduced to the inescapable problems of balance described in the last two paragraphs. To do so, however, would require first a change in the relationships between the UK examining bodies and their clients in the developing countries of the Commonwealth; and secondly acceptance that there are three separable activities, of awarding qualifications, measuring human performance and developing examination syllabuses, and that these activities do not always have to be carried out by the same body. Finally, there may be advantages in looking for co-operative solutions within the framework of the Commonwealth. These themes are pursued in the final sections of this report.

FUTURE TRENDS

202. The main aims of the study have been to establish the present position on technical and commercial examinations and qualifications and to identify current problems. As any solutions will take some time to achieve, it would be sensible to plan to provide for foreseeable developments in any future systems.

Modularisation

203. Some modular structures of courses and examinations have existed for a long time. Reference has already been made to the popularity in the developing Commonwealth countries of the City and Guilds Telecommunications Technicians scheme and the single subject examinations of the examining bodies in the commercial field. More recently the greater use of computers for administrative purposes in the field of qualifications and examinations has made possible more sophisticated modular systems, such as those adopted by BEC and TEC.

204. A greater use of modular syllabuses might provide a means of reconciling local needs with international recognition as well as contributing to the solution of the problem of appropriate standards. A wider range of choice at each level than is available at present would enable the principles, supporting subjects and many applications to be drawn from a central 'module bank' and only genuinely local differences (e.g. law and currency) be devised on a local or national basis. Although the capital cost of a 'module bank' would be high, it would still be lower than separate curriculum development in each country.

Greater Personal Mobility

205. Internationally, there is a trend towards greater personal mobility for additional education and for work. More and more people are likely to study in countries other than their own. Many countries have an urgent need for skilled labour which they cannot quickly fill from their own resources. Where English is the lingua franca it is to be expected that students and skilled workers from Commonwealth countries will be among the temporary migrants. Although immigration may be restricted by decrees of government, the general improvement of communications, despite the energy crisis, seems likely to ensure that this trend will continue.

206. This trend will lead to a greater pressure for harmonisation of qualifications, a recognition that one qualification is equivalent to another for a stated purpose, whether that be entry to further education, exemption from part of it, or a 'licence' to work. The harmonisation of existing qualifications is an extremely difficult task. It would be preferable if future qualifications, at least for those countries with an interest in accepting or 'exporting' students or workers, could be designed to be comparable. The 'module bank' referred to above would help this objective.

The less fortunate

207. Many developed countries are already devoting large resources to education and training schemes to provide opportunities for the less fortunate young people - those who because they have had poor schooling, or are apparently less able, or have just been unlucky, are ill-equipped for

life in a modern technologically-based society. In many developing countries a similar problem already exists in the large cities. As resources become available it is to be expected that the developing countries also will tackle this social problem. It is, after all, an unacceptable concept that youth unemployment and skill shortages should exist side by side forever.

208. Qualifications and examinations for the less fortunate have to start at a lower level than is normal for those in technical and commercial fields. It is unlikely that examinations can be held in a language other than the student's first one, even if a formal examination is appropriate at all. The UK has as much to learn about this as any other country, and indeed many of the initiatives are being taken by examining bodies such as City and Guilds and the RSA. Perhaps this is a field where the whole Commonwealth, developing and developed, can learn together.

Technology Transfer

209. Especially (but not solely) with applications of microelectronics, technology is changing faster today than at any time in history. The new work force coming forward needs to have these new techniques and applications included within their basic vocational education. The existing work-force needs to be updated. The key to the transfer of the new technologies from research and development to day to day applications is the means of updating the teachers and trainers. A system for keeping trained workers up-to-date is also needed but it cannot work without the teachers and trainers. Here again, developed and developing countries are on the same starting line with virtually nil experience. Again, perhaps both can learn together.

210. This is not blind idealism. Anyone who believes that the gap between developed and developing is already too wide must be even more concerned that the speed of technological change will widen the gap still further. It is not just the resources gap that matters - the knowledge gap does too. Techniques have to be found to bridge it, and qualifications and examinations are likely to be involved.

Distance Learning

211. One such technique is Distance Learning - a more recent (and more embracing) term for what has been known for years as correspondence education. Guildford Educational Services is itself engaged in an investigation into Distance Learning for Technicians - to see how feasible it is to establish a network of colleges to provide in the UK at technician level the sort of facility which the Open University does at university level.

212. Distance Learning systems may provide opportunities which do not exist - for reasons of cost among others - for thousands of people in the developing countries. They may provide, for example, a systematic method of preparation for those who at present attempt external UK examinations improperly prepared and swell the numbers of failures. Again, many of the concepts are new to developed countries, but they are actively moving forward, with advanced systems in Australia and Canada as well as the Open University in the UK. One of the prerequisites of a system is the continuity of the qualifications on which it is based (because of the high capital cost of the material for self-learning). A Distance Learning system in a developing country will therefore be dependent on its settling its policy on vocational qualifications and examinations.

213. Distance Learning systems are likely to use the printed word to a great extent, but may also depend on educational television or radio (in which a number of developing countries have considerable experience), audio cassettes and increasingly on computer assisted learning. It is likely to increase the pressure for modularisation (because the student working outside a college needs to learn in small steps) and the high cost of the learning material is likely to add to the pressure of harmonisation.

Examinations Technology

214. Recent developments in technology will inevitably change the methodology of examinations. The following developments seem the most likely:

(a) The increasing cost and unreliability of high volume post or air freight (paragraphs 166-167) could lead to its replacement by data transmission via a satellite if the right administrative and security arrangements could be devised.

(b) The widespread introduction of examinations on demand could be developed from Pitman's tried techniques, via new ideas generated by City and Guilds, to instant marking of an individual's attainment when he is ready to take the test. The equipment already exists, but is very expensive. A less costly version is almost ready for marketing. The administrative and security systems will surely follow.

215. Such changes in examinations technology are likely to increase the cost-effectiveness of international systems of testing as compared with national ones, and will tend to increase the flexibility of the systems, so that national and local requirements can more readily be built in.

216. The hardware for this new technology already exists or is likely soon to be available and the cost of such equipment is not likely to be prohibitively expensive. However, designing the software, and the administrative and security systems is a completely separate issue. The most opportune time to establish a system based on this new technology would be when systems in general are being changed.

POSSIBLE FUTURE STUDIES

217. Within the scope of this study it is possible only to suggest directions in which solutions might lie and to highlight those areas where further studies may be required. Appropriate areas of study are: national examining bodies; occupational analysis of candidates; high failure rates; special problems in small states; examinations in languages other than English.

National Examining Bodies

218. This study does not include any collection of statistics or other information from national examining bodies. Such information is likely to provide a different perspective, and it would seem sensible to conduct such a study before embarking on a particular approach to solutions. It would be particularly useful if it could incorporate studies of national trade testing systems and of the sharing of facilities and resources between academic and vocational examining bodies.

Occupational Analysis of Candidates

219. UK examining body statistics were analysed to show the numbers of candidates who actually sat the examinations by the levels and groupings of subjects in the questionnaire and by continent. In technical subjects there were 63 groups of over 100 candidates and 114 groups of 1-99 candidates (100 of them with under 50 candidates). If the figures were to be more closely analysed by individual examinations rather than groupings and by countries rather than continents, the numbers sitting in any one place would often prove to be very small indeed. However, the figures analysed were those of candidates sitting the examinations of three UK examining bodies. If those sitting regional, national or college examinations were added there might prove to be more viable numbers in some cases.

220. This question of numbers for different examinations can be crucial to the decision of the sort of solution which would be appropriate for each country. Adequate numbers affect not only the logistics of examining, but also the technicalities of using question banks, and are helpful in establishing the reliability of an examination. A quantitative study of this nature, using statistics gathered from regional and national examining bodies as well as those in the UK, would give a much more accurate analysis of the problem than the general findings of this study. It would be helpful if, as a by-product of such a study, the statistics provided by the examining bodies (national, regional and UK) could be harmonised so that they could be collected and produced in a standard format.

High Failure Rates

221. The question of high failure rates of overseas candidates in some of the UK examinations (paragraphs 149-153) also requires further study. It is possible that this study could be linked in some way with those suggested on national examining bodies and on the occupational analysis of candidates, so as to avoid too many different approaches to the examining bodies.

Particular Problems of Small States

222. A by-product of the studies already mentioned would be a detailed picture of the qualifications and examinations of small states. This could be consolidated with the Commonwealth Secretariat's current study into the educational problems in small states.

Examinations in Languages other than English

223. A longer term project, would be a survey to examine the validity of examination techniques, developed for the English language, when such techniques are applied to examinations conducted in other languages. The advice normally given on the construction of multiple-choice questions, for example, might prove to be completely inapplicable to a language with a different grammatical structure to English. There is, for example, considerable experience in India on the use of such examinations.

AN APPROACH TO SOLUTIONS

The UK Examining Bodies

224. The experience and resources of the UK examining bodies allied to their tradition of sympathy for the problems of developing countries, their independence from government control, the international currency of their awards and their willingness to consider changes in relationships, make them a Commonwealth asset which it would be sensible to use in any approach to solutions of the problems of technical and commercial qualifications and examinations.

225. The sort of new relationship which can be envisaged is one in which the UK examining body is no longer solely responsible for the examination syllabus and measurement of attainment and the award, but may retain responsibility for some of these activities, or even all of them, in association with a particular country, national examinations body or college.

Other Commonwealth Examining Bodies

226. The brief account of two regional examining councils (paragraphs 174-190) shows that facilities have been developed outside the UK which have the potential of being used on a pan-Commonwealth basis if suitable arrangements could be made. Within regional and national systems there is probably a great deal of professional experience which could be tapped in a co-operative approach to solving examination problems.

Examination Syllabuses

227. As already noted in paragraphs 203-204 there is a strong case for a systematic modularisation of syllabuses, where this does not already exist, with the object of establishing a 'module bank'. As noted in paragraph 172 there is an urgency for redevelopment in technician education. Craft technical education would be a second priority, and commercial education - to a great extent modularised - could wait for the time being.

228. Ideally, the structure and content of the modules in the bank would reflect the needs of the developing countries and depend on an input from them - and also comments on drafts as the project continued. This would require considerable administrative skill, and financial backing from outside the examining bodies. Established methods of curriculum development within the UK would have to be extended to include corresponding members. However, it would not be necessary to force through any general compromise unsatisfactory to all. Areas of major differences of approach could be accommodated by alternative modules within the bank. Alternative modules could also cater for a differential adoption of rapidly changing technology.

229. It is possible that a further breakdown of content could be made so that a bank of learning objectives could be formed, from which syllabuses could be constructed to match even the smallest local variations. TEC has already prepared a Mathematical Bank of Objectives which operates in this fashion. However, mathematics is easier than most subjects to treat in this way, and banks of learning objectives might be a second stage following the 'bank of modules'.

Measurement of Attainment

230. A standard module bank, used as a reservoir from which course material was drawn, would enable there to be several different approaches to examinations: college, national, regional or by a UK body; by the use of banked or traditional questions; by validation; or by the type of future developments described in paragraphs 214-216. Whichever way were used, means could be devised to ensure approximate equivalence of standards. A country could decide which approach it wanted to adopt.

231. Where it was decided to use a UK examining body, consideration should be given to signing a renewable contract for a fixed term of years to overcome the concern about future developments referred to in paragraphs 171-172 perhaps in conjunction with the normal candidate fee payments. In addition, attention should be paid to methods of overcoming the problems of foreign exchange.

Award of Qualifications

232. Possibly the most important conclusion to come out of this study, and one of immediate application, is that it is technically possible, easier and cheaper for a Commonwealth country to award its own qualifications on the basis of examinations set by an established examining body than it is to set up a national system of examinations. Also, if it is important that these qualifications have international currency, then it is possible for the award document itself to refer to the collaboration between the award-making body in the developing country and the UK examining body.

233. Appendix IV describes the different gradations of collaborative certificates which City and Guilds now uses, but it may be possible to negotiate others either with City and Guilds or with the other UK examining bodies.

234. The merit of this approach is that it does not depend on the adoption, or successful conclusion, of the suggestions made above on syllabus development and measurement of attainment.

Harmonisation of Existing Qualifications

235. The above proposals, if adopted, will allow for a greater degree of harmonisation of standards and course content. But it will not help those who have already obtained their qualifications. It would therefore be useful to have a Commonwealth version of the UK National Equivalence Information Centre (see Appendix V), and an agreement between Commonwealth countries, developing and developed, for the mutual recognition of qualifications. A prerequisite would be a Commonwealth focal point for technical and commercial examinations.

A Beneficial Chain Reaction

236. Pan-Commonwealth co-operation in the field of technical and commercial examinations could bring real and lasting benefits to all member countries. It is possible that a 'beneficial chain reaction' would take place, as follows:

(a) mutual recognition of existing standards and awards

leading to

(b) harmonisation of standards and course content

leading to

(c) systematic tackling of the problems of small numbers of candidates (particularly in the smaller states there would be an advantage in tackling these problems on a Commonwealth basis)

including

(d) assistance with the development of Distance Learning schemes (see paragraphs 211-213)

as a major aid to

(e) 'technology transfer', itself an essential ingredient in bridging the knowledge gap between the developed and the developing countries.

237. Key roles in this 'beneficial chain' could be played by the UK and other Commonwealth examining bodies, but the initiatives will come best from the Commonwealth countries themselves, working through the Commonwealth Secretariat.

APPENDIX I

EXTRACTS FROM THE QUESTIONNAIRE

COMMONWEALTH SECRETARIAT

SURVEY OF TECHNICAL AND COMMERCIAL QUALIFICATIONS AND EXAMINATIONS IN THE DEVELOPING COUNTRIES OF THE COMMONWEALTH

INTRODUCTION

1. The Commonwealth Secretariat is conducting a survey on the current position on technical and commercial qualifications and examinations in the developing countries of the Commonwealth. This follows a recommendation from the Seventh Commonwealth Education Conference (Accra 1977) that a study should be made of the problems encountered in technical examinations. Information for the survey is being collected by this questionnaire.

2. Address (Commonwealth Secretariat)

3. The questionnaire falls into two parts:

. In Part I (pages 2-6) you are asked to indicate, by entries in the appropriate columns, the courses offered by your college (or other institution) by subject area, and level and type of qualification. These concepts are explained in more detail in paragraphs 4, 5 and 6 below. Where the course leads to an OUTSIDE QUALIFICATION you are asked to indicate how appropriate the examination syllabus appears to be to local employment requirements.

. In Part II (pages 7 and 8) you are asked to give information on any recent or forthcoming changes in policy concerning technical or commercial qualifications or examinations- the reasons for using outside qualifications; and to make any other comment on technical or commercial qualifications, which you think might be of help.

4. On pages 2-5 of the questionnaire a wide range of technical and commercial subjects are listed in 32 groups. As there are probably subjects not included on these pages, but which are offered by some institutions, a facility for 'writing in' additional courses is given on page 6.

5. For the purpose of this questionnaire, technical qualifications and examinations have been divided into three levels which fall between, but do not include, trade tests at one end of the scale and university level awards at the other:

Higher Technician

Typified by City and Guilds Technicians Part III or the Higher Technician Diploma. Also includes some of the awards of professional and similar bodies if they are below graduate level. Technical management studies are also included at this level.

Technician

Typified by City and Guilds Technicians Parts I and II or the Ordinary Technician Diploma. General Courses and Supervisory Studies are included at this level.

Craft

All levels of City and Guilds Craft courses. Also includes Mechanics and Operatives work.

Similarly commercial qualifications have been divided into three levels, roughly corresponding with those adopted by the Royal Society of Arts and the London Chamber of Commerce and Industry:

Stage III	:	Advanced
Stage II	:	Intermediate
Stage I	:	Elementary

From most of the groups of technical and commercial subjects on pages 2-5 of the questionnaire, all three levels of qualification are shown, but for some only two are normally appropriate. Where subjects are 'written in' on page 6, the appropriate level of qualification should also be recorded.

6. A preliminary review of the information available to the Commonwealth Secretariat has suggested that four types of qualification are awarded in technical and commercial subjects in the developing countries of the Commonwealth:

(i) Qualifications awarded by LOCAL EDUCATIONAL INSTITUTION (e.g. a polytechnic or a college).

(ii) NATIONAL QUALIFICATIONS awarded by a Government Department or National Body.

(iii) REGIONAL QUALIFICATIONS awarded by a regional examining authority in which several countries participate.

(iv) OUTSIDE QUALIFICATIONS, awarded by institutions completely outside the nation or region including both those awarded by such bodies as City and Guilds, the Royal Society of Arts, the London Chamber of Commerce and Industry, and also those awarded by, say, American universities to students in some Caribbean colleges.

7. The information in this questionnaire will be treated as confidential and will not be made available in any form which identifies your Institution outside the Commonwealth Secretariat and the survey contractors (Guildford Educational Services Ltd.) without the written consent of the person named on page 8 or his/her successor in office.

Groups of Subjects 1	Levels of Courses 2	College /Poly Qualification 3	National Qualification 4	Regional Qualification 5	Outside Qualification 6	Please complete columns 7 and 8 if there is a tick in column 6		Line No. 9
						Examining Body 7	Code 8	
Agriculture	Higher Technician							111
Animal Husbandry	Technician							112
Fishing	Craft							
Forestry								
Horticulture								
Mining and Quarrying	Higher Technician							
	Technician							
	Craft							
General Engineering	Higher Technician							
Combined Electrical and Mechanical Engine								
Business Studies	Stage III Advanced							841
Marketing	Stage II Intermediate							842
Secretarial and Typing	Stage II Intermediate							852
	Stage I Elementary							853
Clerical and Office Skills	Stage II Intermediate							862
	Stage I Elementary							863
Publishing Journalism	Stage III Advanced							871
Broadcasting Advertising	Stage II Intermediate							872

PART I

If your institution runs courses leading to qualifications in the subjects and at the level shown, please indicate by a tick in the appropriate column(s) 3-6 what type of qualification is awarded. Please tick more than one column if appropriate. Please see paragraphs 5 and 6 on page 1 for the definitions of levels and types of qualification.

If your institution also runs courses leading to qualifications in subjects not included on pages 2-5, please enter them on page 6 in the blank spaces provided.

Where your institution offers courses leading to an OUTSIDE QUALIFICATION (a tick in column 6) please state the name (or abbreviation) of the examining body in column 7, and in column 8 please put a code number 1, 2, 3, 4 and 5 to indicate your opinion on how appropriate syllabus is, on the following scale:

- 5: Syllabus completely matches employment requirements
- 4: Syllabus matches employment requirements with a few exceptions.
- 3: Syllabus partly matches employment requirements
- 2: Syllabus is only slightly appropriate for employment requirements
- 1: Syllabus does not match employment requirements.

PART II

(a) Please give information on any recent or forthcoming changes in national or institutional policy concerning technical or commercial qualifications and examinations.

(b) If you have indicated on pages 2-6 that your institution offers courses leading to Outside Qualifications, please summarize the reasons why such qualifications are used.

(c) Please record on this page any further comment you want to make on technical or commercial qualifications or examinations.

APPENDIX II

QUOTATIONS FROM QUESTIONNAIRE RESPONSES

(Note: In view of the assurances of confidentiality the origin of the quotations is not given).

General Comments on Transitional Positions

"X" has depended on the City and Guilds of London Institute and Royal Society of Arts (London) examinations as a means of evaluating technical, vocational and commercial education and training programmes. As a result, the pattern of technical, vocational and commercial education in this country has been greatly influenced by the requirements of these British examining bodies.

* * * * *

These outside qualifications are being used until we develop our local or regional certification.

* * * * *

CGLI examinations maintain standards, and curricula obviously related very much to employers' needs. However, opinion is now that national qualifications should be the aim. Continuing help from TEC and CGLI will be most welcome.

* * * * *

The chief reason for taking City and Guilds Examinations is that there are no local trade examinations. Personally I would prefer to continue with City and Guilds Examination in order to maintain the standard reached in each trade. The setting up of local examinations I feel would inevitably lead to a lowering in standards, due to the limited number of people sitting for examinations in "X". Also many new firms that are being established in "X" readily accept this qualification. Thirdly for students who emigrate the same is the case. City and Guilds have an acceptable standard.

* * * * *

I believe that local qualifications would be good enough for our students at craft and technician levels; for very few of them will go overseas to work or to study. At the same time, we should not deprive them the opportunity to obtain a foreign qualification; it could provide them a good incentive to study and to better themselves.

* * * * *

Pitmans & RSA

Limited resources make them easier to manage as they are already widely accepted qualifications.

City and Guilds

Largely same as above; however if a body similar to one working in some regions in Africa were to operate in "X" we would opt to have a regional body to validate our local qualifications in co-operation with City and Guilds in a phased arrangement.

The College of "X" is new (established 1975) and is still in the process of having its qualifications accepted by the community.

In the case of General Engineering, the College is not yet in a position to train manpower to the Higher Technician level, and must, therefore, depend on the assistance of outside institutions.

In the case of the R.S.A. and the London Institute of Banking, these examinations are optional.

Other Reasons for Using Outside Qualifications and Examinations

City and Guilds and Pitmans are of course internationally recognised and a certificate issued by these bodies is of far more value to the student looking for a job (especially overseas) than a locally issued diploma.

The wide use of the City and Guilds (in many countries) makes comparison relatively easy, and most of these examinations are specially prepared for overseas countries. The Examinations of the NWRAC are arranged in 'easy' stages - ideal for working people who attend Evening Classes.

To enable students to pursue advanced studies, without undue duplication of topics and subjects already done, e.g. a student who already has Part I of the 626 City and Guilds course can, if he then goes to Britain, register with a college to take Part II of the exam.

City and Guilds examinations are internationally known and accepted. Students with purely local qualifications may find it difficult to 'sell' their local qualifications abroad. Hence we give students the chance to gain local qualifications which in many ways are more fitting to the local situation than the C & G qualifications, while at the same time we allow them to gain C & G qualifications for international acceptance. A similar argument can be made for the Royal Society of Arts examinations.

It is considered that "X" as a developing nation, should set high standards in qualifications which will be acceptable in other countries. City and Guilds therefore offers a standard on which "X" may build some of her technical and vocational qualifications. Through our association with City and Guilds local personnel can be trained in the conduct of technical examinations.

We believe that if any person thinks that he has acquired certain standard skill or knowledge of a particular level to sit for any examination in any course or subject, he should be permitted to avail of such test or examination on payment of full fees and other expenses fixed for the same and declared pass or fail on merit and his performance at such test or examination. We believe that it should be his fundamental right to sit for these examinations if he so desires, regardless of the place and country to which he belongs and that no examining authorities should refuse him permission to avail of these examinations.

The reasons why we require outside qualifications is because to maintain a balance in standard between our qualifications and outside qualifications. Besides that, we have to cope with the employment requirements in "X". Moreover, these outside qualifications along with our qualifications would enable the students to further the course to degree level with certain subjects being exempted in the colleges abroad.

The present examinations and qualifications conducted by the Ministry of Education normally lacks of recognition from private firms and companies since too much emphasis is placed on academic subjects and not technical subjects or trade subjects.

We have been using Pitman's Examinations for some years now and find their standard of papers suitable to the needs of the students here. The O.C.B.S. is perhaps not quite as suitable as it might be but was chosen as being the best on offer.

For high level manpower the need exist to relate training and qualifications to an acceptable international standard. Whilst much of the course work is irrelevant to local needs, there exists a real need for personnel to have an awareness and greater understanding of their work, since there is now likely to be a greater interaction with international agencies since independence. We feel therefore that in order to win confidence, local personnel must be exposed to the same type of education and training as their overseas contemporaries.

City and Guilds, R.S.A. and Pitmans examining bodies set up examinations in Technical and commercial subjects; the certificate issued by these bodies have been recognised qualifications for employment both in public and private sectors. Such certificates also have international recognition for the award of scholarships and for admission to institutions (overseas) for further training.

Comment Critical of Outside Examinations

Under developed countries are suffering from

- (a) Desperate shortage of Craft Skills
- (b) Foreign Currency and Economic Problems

Skills are required for the shortest possible time - the 820 basic course is in fact wasting the first year of Apprenticeship as it stands at present.

Suggestion - retain a Basic First Year course - but related to three separate crafts (1) Mechanical (2) Electrical (3) Automotive. The final exam of say multi-choice + problem solving would be related to each specific subject. Eliminate the section which is common for all three.

Department Heads require 'Trainees' to be learning the 'trade' from 'square one' and not wasting time on a Phase A and Phase B before eventually moving to a C Phase of the trade.

Practical Testing

Phased tests must be to suit local needs. Because of

- (a) Materials are extremely difficult to obtain
- (b) The test pieces must reflect an 'on the job requirement'.

Other Comments

The Institute meets the needs as they arise and the courses very very much from year to year. Many short courses are run, e.g. Outboard Motor Operating and Servicing, Auto Electrics, Welding, Chainsaw Operating, Motor Maintenance etc. For all these courses the College issues its own Certificate. On occasions courses have been run on a refresher basis for Government Officers to obtain G.C.E. London/A.E.B. subjects.

Steps are being taken to revise Craft Syllabuses along modular lines in order to obtain qualifications to meet the exact requirements of industry and commerce.

For the secretariat courses "X" conducts internal examinations supervised and corrected by its qualified staff, for which Diplomas and proficiency certificates are issued upon successful course-completion. These are being accepted by local and overseas employers including governments in the region. (We however, encourage students to take any amount of overseas examinations if they so desire.)

Nautical Studies

With ships' officer qualifications, a system of Commonwealth validity has existed for many years and it is important that there is Commonwealth agreement on and implementation of minimum standards of training and certification.

APPENDIX III

GLOSSARY OF TERMS USED

Application

This is one of the learning categories or abilities which may be assessed. Application questions or tasks require the student to use his knowledge and understanding in order to solve a problem which is new to him. Contrast Knowledge and Comprehension(q.v.)

Attainment

A student's attainment is what he knows or can do, usually as a result of following a course of study. Attainment testing is distinguished from predictive (or aptitude) testing, which seeks to determine what the student might learn or learn to do given appropriate tuition.

Banking

This is the system in which examination questions or tests are retained in secure conditions and re-used on subsequent occasions, often in a different combination. Contrasted with a traditional system (q.v.). Banking requires greater capital outlay, but can be used to improve reliability, efficiency and flexibility. A form of banking may also be used to provide a central 'pool' of course modules or learning objectives.

Comprehension

Comprehension is one of the learning categories which may be assessed. Examination questions testing comprehension require the student to show that he has understood what he has learnt, not simply to recall it.

Craft

Craft level courses and examinations are designed for the skilled craftsman in industry, whose work is mainly 'with the tools', but who also needs an understanding of related technology. The academic level of a craft course and examination is below that of technician. Craft examinations are offered by City and Guilds of London Institute.

Criterion-referencing

A criterion-referenced assessment is one where the conditions for passing are set out in advance. The student passes if he fulfills certain criteria - for example if he can perform each of a set list of tasks to the standard required. Criterion-referencing is more suitable for practical skills than for cognitive abilities where it may be difficult to define the criteria with sufficient precision.

Distance Learning

In a distance learning system the student does not have to attend college on a regular basis. Instead he is provided with learning material on which to work at home, although he may also attend a small number of tutorials or practical sessions. Correspondence courses are examples of distance learning schemes, but modern distance learning may also make use of such audio-visual media as cassettes, radio and television.

Efficiency

An efficient assessment is one which makes the best use of the money, time and effort devoted to it. It does not make any unnecessary demand on students, lecturers or assessors, or consume money or resources unnecessarily. Efficiency requires, for example, the minimum number of assessment components consistent with validity and reliability.

An efficient administrative system is also necessary - for example question papers must be printed and despatched on time.

External candidates

An external candidate is one who has not followed a course of study at a college, but who wishes to sit for the examination or assessment in order to gain an award.

External examination system

In an external examination system the examinations and assessments are set and marked by a body outside the college which the students attend. Contrast internal examinations (q.v.)

Internal examinations

Internal examinations are those set and marked by the college which the students attend. The college may also conduct other internal assessments, for example projects or course-work assessment. The award may be made by the college or by an external validating body.

Knowledge

Some times called 'information' or 'recall of facts', this is the lowest learning category (ability) assessed. A knowledge question requires the student only to remember what he has been taught, not to understand it (comprehension) or to apply it (application).

Learning Categories

Also called 'abilities' or 'types of knowledge', learning categories are the different divisions of knowledge which may be assessed in an examination system. They are broadly divided into cognitive (or intellectual), psychomotor (or practical) and affective (attitudes - not usually covered in attainment testing). The cognitive domain may be subdivided into knowledge, comprehension and application (q.v.).

Learning Objectives

A syllabus or scheme of work written in learning objectives states what the student should be able to do by the end of the course in terms of behaviour which can be observed. For example 'By the end of the course the student should be able to determine the square root of a 4-figure number using tables'. Objectives are a more precise way of stating what is expected than conventional syllabuses. The terms 'behavioural objectives' and 'general and specific objectives' are also used.

Modular schemes

Modular schemes are those divided into a number of modules or units (typically 3 to 5 in each year of the course), each of which may be taken and certificated separately. In such schemes the student does not need to enter for all the papers at once. Examples of modular schemes are TEC certificates and diplomas and the CGLI Telecommunications courses.

Multiple-choice questions

These are a form of objective questions (q.v.), in which there are 4 (sometimes 5) possible answers given. The student has to choose which one of them is correct.

Norm-referencing

In a norm-referenced examination the pass mark is determined by reference to the 'norm', the overall performance of all students at that level. In practice this often means passing a fixed percentage, which is a reasonable approach in a large national or international examination where the standard of students tends to remain the same from year to year. In a smaller local examination where the standard of the students may vary, norm-referencing should not be applied without the use of reliable banked questions to ensure stable standards.

Contrast criterion-referencing (q.v.)

Objective items/tests

In an objective question (often called an 'item'), the student is required to select the correct answer or answers from a given range of possibilities. Because the correct answer is determined when the question is set, no subjective judgment is involved in the marking - indeed marking can be done by clerks or by machine. Common types of objective question include multiple-choice (q.v.), multiple-response, matching and true/false.

For course objectives or behavioural objectives see under 'Learning Objectives'.

Outside examinations system

In an outside system, the examinations are organised and certificated by a qualifying body outside the country where they are taken. Usually the

examinations are set and marked by the qualifying body, sometimes merely validated.

Programme

A programme is the combination of units or modules which together make up a complete and coherent course. For example, a TEC certificate programme consists of 15 units.

Psychomotor skills

Psychomotor skills are practical abilities and are therefore to be distinguished from the cognitive abilities of knowledge, comprehension and application (q.v.). Psychomotor skills include, for example, welding, drilling and plastering.

Qualifying body

A qualifying or award-making body is an organisation which confers certificates or similar awards on successful students. Usually the awards are made on the basis of examinations conducted or validated by the body itself, but it would be possible for the award to be made on the basis of an assessment conducted by another organisation.

Reliability

The reliability of an assessment is its consistency of measurement. Reliability requires good and consistent syllabus coverage, consistent standards between students and between colleges from year to year and reliable marking. The result which a student gets should be the same as it would have been if he had taken a different (but comparable) examination paper, on a different day, at a different centre and marked by a different marker.

Shelf life

The shelf life of an examination syllabus or question bank is the length of time for which it remains valid before needing to be revised or discarded. The shelf life of both syllabuses and individual banked questions may be expected to be 5 years.

Side-effects

The side-effects of an examination or assessment are the incidental effects which it has upon the course - these may be either beneficial or harmful. For example, the use of open-book examinations has beneficial side-effects in encouraging emphasis on the application of knowledge rather than on learning by rote.

Specification

The specification for an examination paper or other assessment component lays down the topics and abilities (learning categories) which are to be assessed and the weighting to be given to each. The specification is normally expected to remain in force for a number of years, preferably for the life of the syllabus.

Technician

Technician courses and examinations have a greater theoretical content and a higher academic level than craft courses (q.v.).

Traditional (one-off) systems

A traditional examination system is one in which a fresh paper is specially prepared for each examination series, usually only once or twice a year, and then discarded. Contrasted with banking (q.v.). Frequently, traditional systems are associated with constructed-answer questions (short-answer, structured and essay) and banking with objective testing, but this need not necessarily be so.

Validation

An external award-making body which validates college courses does not itself set or mark examinations for the students. Instead it assesses the course curriculum and assessment scheme (by correspondence and usually as stated by visiting assessors or moderators). If satisfied, it awards certificates to those students reported by the college to have passed the assessment.

Validity

The validity of a scheme of assessment is the extent to which it measures appropriate topics and abilities. Validity requires that the assessment should match the syllabus, but also that the syllabus itself should be relevant to the students' present or intended occupation. A scheme developed for U.K. students will not necessarily be valid for those overseas.

APPENDIX IV

CERTIFICATES AWARDED BY THE CITY AND GUILDS OF LONDON INSTITUTE IN COLLABORATION WITH OTHER BODIES

1. All certificates give the full name of the candidate, the title of the award (eg Mechanical Engineering), and may include information about the grades he received and the college (if any) which he attended. All this information is computer-printed onto a blank certificate, and it is the design of this blank which can vary to indicate the degree of collaboration.
2. There are five main points which can be varied:
 - (i) The emblem (coat of arms, logo)
 - (ii) The wording of the heading and any subsidiary heading
 - (iii) The security background to the computer printing (normally City and Guilds or the name of the awarding body repeated in very small lettering in colour, which incidentally helps to make the certificate more attractive visually).
 - (iv) The signatures printed at the foot of the certificate
 - (v) Any supplementary wording.
3. The standard City and Guilds certificate has
 - (i) The City and Guilds emblem
 - (ii) A main heading 'CITY AND GUILDS OF LONDON INSTITUTE' with subsidiary headings 'Incorporated by Royal Charter' 'Founded in 1878'.
 - (iii) A security background of 'City and Guilds' repeated.
 - (iv) Printed signatures of the Chairman of Council and the Director-General.
 - (v) No supplementary wording.
4. City and Guilds awards a number of certificates 'in conjunction with' another body or bodies. Four variants were seen during the study:
 - (i) In two of them the City and Guilds emblem was retained on its own. In one it was removed. In the fourth it was balanced by the emblem of the other body.
 - (ii) In all cases 'CITY AND GUILDS OF LONDON INSTITUTE' remained the main heading and 'In conjunction with (the name of the other body)' replaced the wording noted in paragraph 3(ii) above as a subsidiary heading.
 - (iii) In all cases the security background remained 'City and Guilds'.
 - (iv) In one case the two City and Guilds signatures only were included; in another those of the President and Chief Executive of the other body were added; in a third case those of the Presidents of two other bodies were added; and in one case the only two signatures were the Director-General of City and Guilds and the Secretary of the other body.

(v) In no cases was supplementary wording used.

5. The next gradation of dual certification is where the other body takes precedence over City and Guilds. Two cases were noted during the study (called here Case A and Case B)

(i) In Case A there were no emblems (possibly because the other body did not have one); in Case B the emblem of the other body was added at the top.

(ii) In both cases the name of the other body became the main heading (in large bold letters) and 'in collaboration with City and Guilds of London Institute' became a subsidiary heading.

(iii) In Case A the security background remained 'City and Guilds'; in Case B the name of the other body was used.

(iv) In both cases there was signature from the other body which took precedence (i.e. was on the left) over that of the Director-General of City and Guilds.

(v) In neither case was supplementary wording used.

6. In the next gradation an example was seen of a certificate awarded as an interim arrangement between the Business Education Council and City and Guilds:

(i) There was no emblem.

(ii) The main heading was 'Business Education Council'; there was no subsidiary heading.

(iii) The security background was 'City and Guilds'.

(iv) There were signatures of the Chairman of City and Guilds and the Business Education Council.

(v) Supplementary wording was printed at the bottom: 'This examination is administered on behalf of the Business Education Council by the City and Guilds of London Institute'.

7. The final stage was reached in a Certificate printed by City and Guilds on behalf of one of the regional examining councils. The emblem, the main heading, the security background and the signatures are all of the regional council. There is no subsidiary heading or supplementary wording, and indeed nothing to show any involvement of City and Guilds at all.

8. While the various certificates described above reflect a series of different relationships, too much 'political' subtlety is not necessarily implied in all the details, which may be influenced by:

(a) aesthetics of design and layout (particularly the size of the lettering);

(b) practical considerations (if an organisation has an annually elected President it will be more sensible to use only the signature of a permanent Chief Executive);

(c) cost (a special security background in particular can add substantially to the cost).

APPENDIX V

THE NATIONAL EQUIVALENCE INFORMATION CENTRE (NEIC) FOR THE UNITED KINGDOM

The British Council and the NEIC

The Department of Education and Science asked the British Council to establish a national centre because of the Council's existing involvement in such work and the knowledge it had, through its offices overseas, of non-UK qualifications. It does not operate as a body which makes rulings on the recognition which is to be given to overseas qualifications but gives advice to overseas and UK institutions, and individuals on the recognition generally accorded. In this sense it acts as a clearing-house for the storing and dissemination of information. It will offer, if required, advice to institutions of higher education and the professional associations on the recognition which, in its opinion, should be accorded to a particular overseas qualification. Institutions are free to accept or reject this advice as they wish. In practice, the smaller institutions which are lacking in information and precedent are generally glad to accept the advice. The larger institutions approach the NEIC for advice and information on more obscure qualifications. The NEIC does not produce, as the German centre does, a document listing in detail the recognition which is recommended for overseas qualifications. A comprehensive description of the United Kingdom NEIC is given in the Council of Europe document CCC/ESR (77) 13.

Nature of enquiries handled by the NEIC

The majority of enquiries received by the NEIC concern qualifications related to access to either further or higher education, although an increasing number of enquiries related to job application and employment prospects are also handled. Enquiries relating to teacher qualifications are referred to the Teachers' Qualifications Branch of the Department of Education and Science.

APPENDIX VI

BIBLIOGRAPHY

Bloom B.S. (ed) Taxonomy of Educational Objectives; the classification of educational goals. Handbook 1: Cognitive domain. (London, Longmans, 1956).

City and Guilds of London Institute, Examinations Policy (1979)
Objective Testing (2nd ed. 1979)

Ebel R.L., Essentials of Educational Measurement (Englewood Cliffs, New Jersey, Prentice Hall 1972)

Gronlund N.E., Stating Behavioural Objectives for Classroom Instruction (London, Macmillan, 1970)

Gronlund N.E., Constructing Achievement Tests (Englewood Cliffs, New Jersey, Prentice Hall 1968)

Hudson B (ed), Assessment Techniques: an Introduction (London, Methuen, 1973)

Macintosh H.G., Techniques and Problems of Assessment; a Practical Handbook for Teachers (London, Edward Arnold, 1974)

Macintosh H.G. and Morrison R.B., Objective Testing (London, Hodder & Stoughton, 1969)

Mager R.F., Preparing Instructional Objectives (Belmont, California, Fearon, 1975)

National Association of Teachers in Further and Higher Education
Assessment (1977)

Pidgeon D. and Yates A., An Introduction to Educational Measurement (London, Routledge and Kegan Paul, 1968)

Thorndike R.L. and Hagen E.P., Measurement and Evaluation in Psychology and Education 4th ed. (New York, John Wiley, 1977)

Thyne J., Principles of Examining (London, Univ. of London Press, 1974)

Ward C.M. Designing a Scheme of Assessment (1980)

 Preparing and Using Constructed-answer questions (1980)

 Preparing and Using Objective questions (1981)

 (All in the Handbooks for Further Education series,
 Cheltenham, Stanley Thornes)

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