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CLERK OF THE SENATE

THE PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

R E P O R T

relating to the proposed construction of a

CHEMICAL PHYSICS LABORATORY BUILDING

for the

COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANIZATION

at

CLAYTON, VICTORIA

CONTENTS.

THE PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

CHEMICAL PHYSICS LABORATORY - CLAYTON, VICTORIA.

REPORT

By resolution on 16th November,1960, the House of Representatives referred to the Parliamentary Standing Committee on Public Works for investigation and report, the proposal to construct a new Chemical Physics Laboratory Building at Clayton, Victoria. The Committee have the honour to report as follows:-

SECTION I - INTRODUCTION

Historical

1. The Chemical Physics Division, for which the new laboratory is proposed, originated in 1944 when the Commonwealth Scientific and Industrial Research Organisation first entered the field of chemical physics. At that time it formed a section of the Division of Industrial Chemistry and so remained until 1958 when the Division was reorganized as the Chemical Research Laboratories and the status of the Section was raised to that of a Division.

2. Research in the field of chemical physics is being carried out in laboratories at Fisherman's Bend, Victoria. It was there that in 1945, the first electron microscope in Australia was set up and for the first time, magnifications far greater than those obtainable from optical means were available to Australian scientists.

3. In the years that followed new instruments and techniques, at least as good as, and in many cases better than those existing overseas, were introduced in rapid succession.

S E C T I O N II - THE COMMITTEE'S INQUIRIES.

4. The Committee inspected the existing facilities of the Division of Chemical Physics at Fisherman's Bend, visited the site for the proposed laboratory at Clayton and heard evidence from representatives of the C.S.I.R.O., the Department of Works and the Melbourne and Metropolitan Board of Works.

Scope of the Division's Work

5. Evidence was given that one of the most important functions of C.S.I.R.O. is to carry out basic chemical research for Australian industry.

6. The terms of reference of the Chemical Research Laboratories, of which the Division of Chemical Physics is one of the seven divisions and sections, are:-

to promote technical efficiency in established industries;

to stimulate the establishment of new industries;

to encourage use of raw materials of Australian origin;

to seek substitutes for imported materials;

to find uses for by-products not utilized; and

to study national problems to which research staff can contribute by virtue of their experience in other fields.

7. The fields covered by the Division of Chemical Physics are the study of spectroscopy, crystallography and chemical physics of the solid state, and the development of new instruments and techniques.

8. Chemical physics. Chemical physics is that branch of science which lies between the traditional natural sciences of chemistry and physics. It is concerned with the application of modern physical techniques and methods of the utmost refinement to the problems of the chemist.

9. Using X-rays, electrons and spectroscopic methods in conjunction with modern calculating techniques, the structure and composition, often of individual molecules, can be determined with great accuracy.

10. Thus this branch of science has wide application over the whole range of physical, biological and medical science. By the speed and accuracy of its techniques, it has revolutionized assay and control methods in industry.

11. Protein structure studies. The object of these studies is to obtain information about the detailed structure of proteins, in particular the relationship between the structure of fibrous proteins such as wool, hair and muscle, and the crystalline proteins.

12. The Division's work in this field has made significant contributions to knowledge of the morphological structure of wool fibre and the related fibrous protein system, muscle, and has indicated the basic nature of felting and shrinkage processes in wool.

13. The electron microscope study of the protein, ferritin, which is functionally associated with the supply of iron to the blood, has led to the development, in the U.S.A., of an immunological technique of enormous potential.

14. Chemical physics of the solid state. It is now generally recognized that imperfections and defects which confer special properties on crystalline solids, are responsible for many important properties including those which make possible such articles as fluorescent lamps, television tubes and transistors.

15. Research into chemical physics of the solid state is primarily concerned with these imperfections and defects.

16. The study of the oxidation of metals, of importance in the widespread problem of corrosion is an example of the Division's work in this field.

17. Molecular structure and energetics. An understanding of chemical behaviour requires a detailed knowledge of the structure of molecules, the energy states of chemical species and the mechanisms of the molecular processes which constitute chemical reaction.

18. Australian indigenous flora are being explored as source material for the pharmaceutical industry and numerous compounds previously unknown to organic chemistry have been isolated and tested for pharmocological activity. Here the Division has been able to both supplement and replace classical methods of analysis through fundamental advances in X-ray structure analysis and mass spectroscopy, both methods originating in the Division.

19. Collaborative and service work. The Division is frequently called upon to engage in long-term collaborative investigations with other research groups and to undertake short-term investigations to solve specific problems, particularly for industry. More than 250 such investigations, some of which occupied officers for periods in excess of a year, have been completed in the last ten years.

20. The fields in which this work has been carried out include entomology, botany, medicine, the paint industry, animal health, the wool industry, metallurgy, the mining industry, dairy research, the soap industry and aviation.

21. The development of techniques and instruments. Arising from the Division's fundamental research programme and its collaborative and service work, novel techniques and new instruments have resulted as by-products.

22. This aspect of the Division's work has assumed quite substantial proportions, although in no instance has the development of a new instrument been the specific or initial object of the line of research.

23. An example of this is the method of analysis by atomic absorption spectroscopy. It was developed exclusively within the Division of Chemical Physics and is now being developed for specific purposes and exploited commercially, under licence to C.S.I.R.O., in many countries of the world.

24. In the assay of silver in ores, atomic absorption spectroscopy is displacing traditional methods which have been used for hundreds of years, while hitherto no method has been available for the estimation of magnesium in blood serum and urine at clinically significant

concentration levels.

25. Not only, therefore, has a less expensive method of assay been made possible, but also new possibilities in medical investigation have been revealed.

26. Royalties and export income. The development of new techniques and instruments has provided a source of income to C.S.I.R.O. One invention, which is manufactured under licence by an American firm, has so far earned 85,755 dollars in royalties.

27. Numerous inquiries have been received from overseas about the availability commercially, of other instruments developed within the Division.

28. This is a promising sign and the activities of the Division might well lead to profitable export ventures if local manufacture of a wide range of spectroscopic equipment could be encouraged.

29. On this subject the Committee are prompted to quote from the evidence of Dr.Bastow of C.S.I.R.O:-

"One of Australia's most pressing needs is a scientific instrument industry capable of producing specialized instruments. Quite apart from their importance in times of national emergency, scientific instruments are closely associated with the ability of a country to develop its secondary industry. In addition, the expansion in the use of scientific instruments in all aspects of technological and biological work is so great throughout the world that the manufacture of instruments of Australian origin for export could represent a significant contribution to the country's export income. The successful exploitation overseas of patents covering inventions made within the Division has encouraged us to make some effort towards exploitation in Australia, even though the building up of teams of tradesmen and technicians having the necessary specialist skills will be a long term project .....

.....The limiting factor, I suppose, is the level of Australian instrument skills. In this field there are not a great number of firms sophisticated enough to undertake the work. But we believe that the scope is widening very rapidly, and the work that has

been done by Dr. Rees' group in producing equipment superior to that in use anywhere else in the world has given a big fillip to our latent instrument industry. We hope that everything possible will be done to stimulate the making of these instruments in Australia, so that they may be sold on the world markets and thus, incidentally, increase Australia's export income."

30. Training of personnel. Another contribution made is the training of other scientists in electron microscopy, X-ray structure analysis, emission spectroscopy, ultra-violet and visible absorption spectroscopy, infra-red spectroscopy, atomic absorption spectroscopy, mass spectroscopy, electron diffraction and scientific glassblowing.

31. In addition, officers of the Division are in day-to-day contact with industrial scientists at scientific meetings and conferences.

32. The foregoing will show the wide field of activities in which the work of the Division has played a part. Few examples only have been given in this report, of the results of the research undertaken, but it will be evident that the Division is active in research into many subjects of significance in the industrial development of Australia.

33. The Committee were most impressed with the value and importance of the work being undertaken by the Division of Chemical Physics.

Existing Accommodation

34. The staff is at present accommodated in a sprawling group of buildings on a site at Fisherman's Bend which is shared with the Aeronautical Research Laboratories of the Department of Supply.

35. The space occupied by the Division comprises part of one floor of a permanent laboratory block, two makeshift factory bays with temporary mezzanine floors, two buildings constructed from disposal army huts shortly after the war and one small hut.

36. Very little coherence between the sections, and even between groups within the sections, can be achieved when the activities are so scattered.

37. Overcrowding. The laboratories are severely overcrowded, most of the space is substandard and we were told that in some areas where equipment using high voltage is involved, there is considerable danger.

38. The existing site. The site is overcrowded, public transport facilities are poor and atmospheric pollution and vibration arising from the increasing concentration of heavy industry in the area make the site unsatisfactory for the nature of the Division's work.

39. This work calls for the use of highly sensitive equipment with very fine tolerances.

40. Tolerances. The diffraction - grating ruling engine, for example, must be capable of ruling accurately, parallel and equally spaced grooves of specific shape at a frequency of 30,000 per inch. Many of the parts had to be made to tolerances of the order of a millionth of an inch.

41. The need for dust exclusion, temperature and humidity control and vibration supression were evident to the Committee when we inspected existing facilities. Our observations were that the existing facilities incorporate practically none of the conditions desirable for the type of research being undertaken.

42. It reflects great credit on the staff that they have been able to achieve the results they have. This, we believe, has only been made possible by their ability to improvise and their willingness to work under conditions always overcrowded and at times most trying and highly dangerous.

The need for a new building

43. The Committee are convinced that there is an urgent need for a new laboratory, not only to provide relief from the conditions just described, but also to permit an expanded programme of research to be undertaken, to accommodate additional staff as they are required and to enable an increase in the number of visiting scientists from other C.S.I.R.O. Divisions and from overseas.

44. The construction of a new chemical physics laboratory is therefore recommended.

The proposed site

45. Some time ago the Executive of C.S.I.R.O. recognized the need to find more accommodation for the Chemical Research Laboratories in order to relieve overcrowding at Fisherman's Bend. It was also decided

that plans should be made for the eventual removal of all these laboratories to a more suitable site.

46. When the Victorian Government decided to build Monash University at Clayton, C.S.I.R.O. took the opportunity to acquire approximately 38 acres of land immediately north of the university site. It is bounded by Normanby Road to the north, Gardiner Road to the west and Bayview Avenue to the south.

47. It is the intention eventually to concentrate all the C.S.I.R.O. laboratories concerned with industrial chemistry on this site. We were told that the area would provide ample accommodation for these activities.

48. Owing to the pressure on accommodation at Fisherman's Bend, it has become necessary to move one complete division to the new site at Clayton, Being the largest group and having the greatest need for more and better laboratory accommodation, the Division of Chemical Physics was the ovbious choice.

49. The proposed building is to be in the area set aside for it on a master plan prepared some time ago by consultants engaged by C.S.I.R.O. This area is towards the south east of the site.

50. Nearby industrial area. The Committee were concerned to note that the area across Normanby Road from the site has been zoned for general industrial purposes. It was so zoned before the decision was taken to establish the Monash University in the area and before the C.S.I.R.O. site was acquired. From the point of view of the planning authority, there can be no bar to heavy industrial development in the zoned area.

51. Because of the feeling that some of the activities which might occur in the industrial area could adversely affect the operations on the C.S.I.R.O. site the Melbourne and Metropolitan Board of Works examined the possibility of re-zoning the area for light industrial purposes. However, it was found that advantage had been taken of the designated zoning to such an extent that re-zoning would be out of the question.

52. As an example of the type of activity likely to be developed, we were told that the Cyclone Company had planned to establish a drop forging plant. Although there is no official confirmation, it is understood that the company does not propose to go ahead with the proposal.

53. Alternative sites. We were told that many other sites were considered. Ideally, from the point of view of freedom from disturbance by industrial processes and commercial activity, the site should be somewhere in the country.

54. Such a site would, however, fail to meet the desirable features of one handy to industry with which the C.S.I.R.O. is co-operating, in close proximity to a university and near the homes of the staff.

55. Nearness to a university. The C.S.I.R.O. authorities laid considerable stress on the desirability of locating their laboratories near centres of technical and academic learning. Such a close association would stimulate interest in the science of chemical physics, help in recruiting young men to it and permit frequent discussion and criticism between university and C.S.I.R.O. scientists. The opportunity to have frequent discussion would make for greater efficiency and was strongly advocated.

56. When looking for a suitable site, the C.S.I.R.O. authorities studied the Greater Melbourne Plan and found that there was practically no possibility of obtaining a better site within a reasonable distance of Melbourne and near a university. The site chosen represents, in the view of C.S.I.R.O., a fairly good compromise, any disadvantages arising from its proximity to an area zoned for general industrial activity being far outweighed by the advantages of being close to a university, near a residential area from which staff could be drawn and near technical and industrial centres with which there is a need for contact.

57. Evidence was given that the C.S.I.R.O. has negotiated with firms, the activities of which in the zoned area might produce undesirable conditions for the research work to be undertaken. These firms have agreed to modify the construction of their factories so that their activities, particularly those which produce vibration, will not affect C.S.I.R.O.

58. Noxious industries. The zoning of the area adjacent to the C.S.I.R.O. site will not permit processes giving off offensive fumes, smells or effluents.

59. Vibration. Because of the effect on highly sensitive equipment, the problem of ground transmitted vibration needs to be given close attention in proposals such as this.

60. We have been assured that the C.S.I.R.O. can avoid, in the proposed laboratory, vibration problems that may be caused by activities already planned in the area and that there will be no vibration problem created by any further industrial development that can be foreseen at present.

61. Armed with these assurances the Committee are satisfied that the site is suitable. We also agree that there are distinct advantages to be derived from the location of the laboratory in this vicinity.

The proposed building

62. The proposed building will provide accommodation facilities and services required for research in the field of chemical physics. It has been designed strictly in accordance with the design brief submitted by C.S.I.R.O. which laid down specific structural requirements calculated to result in a building as free from vibration as possible.

63. The design. A two storey building of simple design and with three wings has been planned to meet the requirements of the Division of Chemical Physics.

64. It will provide a total floor area of 49,000 square feet, giving 440 square feet per person when the Division reaches its planned strength of 110 people. This space is considered by C.S.I.R.O. to be adequate but no more. In many overseas laboratories the space provided for this type of work is much more generous.

65. A basement connecting the northern and southern wing is proposed. Hypersensitive work and work requiring special atmospheric control will be carried out in this area. An optical testing tunnel, for precise interferometic and other optical work, will be provided as well as space for diffraction - grating ruling engines and the echelle spectograph.

66. In the wings, corridors will be offset to provide office space on the narrow side and suites of laboratories on the wider side.

67. The sketch plans have been discussed with the local authorities and the Department of Works has received advice that the design is acceptable. Copies of the plans have been forwarded to the authorities at the Monash University.

68. Future expansion. The present staff, including permanently seconded officers and guest workers, spending periods of about twelve months or more in the Division, is sixty one. It has been estimated that by the end of 1962-63, when the building is planned to be ready, the staff will have increased to eighty six.

69. Although there are no specific plans for expansion, experience over the last twenty-five years indicates that the ultimate staff strength of a hundred and ten, for which the building is planned, may well be achieved in ten years time. The design provides for an additional wing to be added at some later date.

70. Building materials and finishes. It is proposed to construct the building of brick bearing walls, with the basement of reinforced concrete, the ground floor of similar construction on grade and the first floor of concrete hollow block supported on the brick bearing walls.

71. All external and corridor walls will be of brick with brick cross walls at 30 foot intervals. The roof will be low pitched and sheeted with corrugated asbestos cement.

72. All internal walls will be finished in hard plaster except where glazed tiles are provided in certain laboratories and toilet areas. Internal partitions will be prefabricated units constructed of timber.

73. All window frames will be aluminium and floors generally will be covered with lino tiles.

74. Lower floor ceilings will be finished in hard plaster and the first floor ceiling will be of hardboard and insulated.

75. Cafeteria services. Until such time as additional facilities are required, it is proposed to use the seminar rooms for a lunch room. There is provision in the master plan for a cafeteria building,

but this will not be erected until there is more development on the site.

76. The Committee recommend the construction of the building to the size and design proposed.

77. Engineering services. Engineering services will include the provision of incandescent and fluorescent lighting, special and general purpose power outlets, thermal type fire alarms, an automatic goods lift, air-conditioning, mechanical ventilation, domestic hot water supply and town gas.

78. The limited requirements for steam, compressed air, vacuum and D.C. electrical supply can be met quite adequately by the provision of one or two small portable units.

79. Almost all the activities in the Division depend on electrical supply and this has prompted a thorough examination of ways of meeting the special conditions. Since accessibility to the distribution system and some measure of isolation of one laboratory from another is desirable, it is proposed to provide individual fuse boxes in each laboratory together with one three-phase outlet. An absolute earth terminal will be provided on all benches and service strips.

80. Air-conditioning. Optical and spectroscopic instruments are particularly sensitive to temperature fluctuations and control to within plus or minus 2 degrees fahrenheit is necessary throughout. High stability and high sensitivity electrical circuitry also demand this control.

81. In some work, temperature constancy demanded is of a much higher order of magnitude. The diffraction-grating ruling engine requires control to better than .01° C over period of 14 days and the echelle spectograph requires control to better than .1° C between component parts.

82. The demands of electrical stability of better than one part in 100,000 in the electron microscope supplies, require that the relative humidity should not exceed 50%. Many optical components some costing about £400, suffer immediate damage if exposed to high humidity conditions, and cannot readily be restored to the requisite optical quality.

83. The performance of certain electron optical apparatus depends on the ability of high voltage electrons to pass through the apertures of electromagnetic lenses and the small circular aperture stops, of less than .0005 inches diameter, in the optical system.

84. A single dust particle attached to the wall of the lens causes such distortion of the electron beam that the electron microscope and diffraction camera can become totally inoperative. The dimensions of the apertures are such that a single dust particle can block the aperture completely.

85. It will be readily seen therefore, that for the satisfactory performance of almost all phases of the Division's research, and in order to prevent the deterioration of the equipment employed, it is essential to exclude dust from the laboratory areas.

86. It has been estimated by C.S.I.R.O. that, under present conditions at Fisherman's Bend, at least 5% of the total working time of the staff is spent in counteracting the effects of dust alone. Based on the proposed initial staff of 86 in the new building, this would represent £9,400 of the total amount paid per annum in salaries. It has been further estimated that measures taken to counteract temperature effects in the present accommodation cost at least £3,000 per annum, while a similar amount is involved for working time lost and damage induced in optical and electrical apparatus due to high relative humidity.

87. Thus the annual cost resulting from a lack of proper atmospheric control would be in excess of £12,000 per annum.

88. It is obvious that in providing new laboratory facilities, it is necessary to be able to accurately control temperature and humidity in, and eliminate dust from the laboratories.

89. Although the C.S.I.R.O. requirement was for full air-conditioning, the proposal as referred to the Committee provides for some laboratories to be fully air-conditioned, some to be evaporatively cooled and pre-cooled and the offices to be heated only.

90. With such a scheme dust would be able to enter the building

in the office areas and be transferred inadvertantly into laboratory areas by personnel or through air movement. Also, lack of atmospheric control in offices and corridors would have an effect on the maintenance of humidity and temperature conditions in the laboratories.

91. We were told that it is common practice, in modern overseas laboratories conducting work in chemical physics and related fields, to provide full air-conditioning. The evidence before the Committee clearly shows the need for critical atmospheric control to ensure the proper functioning of highly sensitive equipment.

92. For the reasons given, and in view of the high annual cost of over £12,000 which would be avoided by proper atmospheric control, air-conditioning is regarded as essential.

93. The Committee believe that full air-conditioning, at an estimated additional cost of £34,000, should be installed, and recommend accordingly.

94. Vibration. *Reference has already been made to the* problem of vibration in connexion with the site.

95. The Committee have been assured that the structural proposals will be such that no problem will arise from ground transmitted vibration.

96. Load bearing brick walls are proposed because this form of structure does not transmit vibration to the same extent as buildings in which structural steel and concrete are used. Also, this form of construction is cheaper.

97. Vibration supression will also be achieved by proper attention to the location of laboratories within the building and the isolation of sources of vibration generated within the building itself. For some of the equipment, vibration damping mounts will be provided.

98. Car parking. Attention is drawn to the evidence of the Chief Planner, Melbourne and Metropolitan Board of Works in which he noted that 18 car parking spaces are to be provided for the proposed building with 72 spaces further north.

99. He felt that the parking requirements for this type of establishment could be high for employee strength and suggested a provision of about one car for every three employees, with a relatively small amount

of public parking in addition.

100. The Committee therefore suggest that if the parking area to the north is not intended for use by staff and visitors to the proposed building, a review should be made of the parking space proposed.

101. Estimates of cost. The estimated cost of the proposal, as referred to the Committee, is £415,000 made up as follows:-

	£
building	357,000
air-conditioning, evaporative cooling and heating	44,000
other mechanical services	14,000
	£415,000

102, Full air-conditioning as required by C.S.I.R.O. and recommended by the Committee, would increase the cost of the proposal to £449,000 made up as follows:-

	£
building (reduced plant room space)	354,000
air-conditioning	81,000
other mechanical services	14,000
	£449,000

S E C T I O N III - SUMMARY

Summary of recommendations and conclusions

103. The Committee's recommendations and conclusions, arrived at after studying all the evidence and material submitted, are set out below. The paragraph quoted alongside each conclusion or recommendation refers to the relevant portion of the report.

		Paragraph in report
(1)	Important and valuable research is being undertaken by the Division of Chemical Physics.	33
(2)	The existing facilities incorporate practically none of the conditions desirable for the type of research work being undertaken.	41
(3)	There is an urgent need for a new laboratory.	43
(4)	The construction of a new chemical physics laboratory is recommended.	44
(5)	The proposed site is suitable and there are distinct advantages to be derived from the proposed location of the laboratories.	61

		Paragraph in report.
(6)	The proposed building should meet requirements for approximately 10 years.	69
(7)	The design will permit the building to be extended when necessary.	69
(8)	Construction of the building, to the size and design proposed, is recommended.	76
(9)	Full air-conditioning at an estimated additional cost of £34,000 is recommended.	92, 93
(10)	The Committee have been assured that the structure proposed will be such that no problem will arise from ground transmitted vibration.	60, 95
(11)	There may be a need to review the space provided for car parking.	100
(12)	The estimated cost of the proposal, as referred to the Committee, is £415,000.	101
(13)	The estimated cost of the proposal, as recommended by the Committee, is £449,000.	102

(J. H. O'Byrne.)
Vice Chairman.

Office of the Parliamentary Standing Committee on Public Works,

Parliament House,

Canberra, A.C.T.

20th April, 1961.

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C O L O M B O P L A N.

PROGRESS REPORT ON AUSTRALIA'S PART

TO

31st DECEMBER, 1960.

AUSTRALIA'S PART IN THE COLOMBO PLAN

PROGRESS REPORT TO 31ST DECEMBER, 1960

GENERAL INTRODUCTION

BACKGROUND.

1. A conference of Commonwealth Foreign Ministers convened in Colombo in January, 1950 to consider economic policy in South and South-East Asia, recommended the establishment of a Consultative Committee to examine what assistance the areaneeded, and to consider how countries outside the area could help.

2. In recognition of Australia's interest in the proposal, the first meeting of the new Consultative Committee took place in Sydney in May, 1950. Australia, Canada, Ceylon, India, New Zealand, Pakistan and the United Kingdom with Malaya and British Borneo were represented. At this meeting it was agreed that Asian countries should prepare development plans for a six-year period from 1st July, 1951. Member countries outside the area pledged themselves to help with finance and technical assistance. They agreed to establish a Technical Co-operation Scheme (to commence 1st July, 1950) to provide training, technical experts and technical equipment for the development of the basic skills essential for programmes of economic expansion.

3. Subsequent meetings of the Consultative Committee have been held in London (September 1950), Colombo (1951), Karachi (1952), New Delhi (1953), Ottawa (1954), Singapore (1955), Wellington (1956), Saigon (1957), Seattle (1958), Jogjakarta (1959) and Tokyo (1960). The next meeting is to be held in Kuala Lumpur in 1961. Other countries in the region, namely Burma, Cambodia, Indonesia, Laos, Nepal, the Philippines, Thailand and Viet Nam, joined between 1951 and 1954. The United States joined in 1951 and Japan in 1954. Malaya became a full member in 1957 and Singapore in 1959.

4. The annual Consultative Committee meetings have regularly reviewed the efforts of countries in the region to promote development, the amount of external aid they have received from all sources, and their plans and requirements for the future. The results of these reviews are published in the Committee's Annual Report, the ninth of which was released shortly after the Tokyo (1960) meeting.

5. The Technical Co-operation Scheme, which has been an integral part of the Colombo Plan since 1950, provides a framework for the exchange of technical assistance between member countries. Co-ordination is provided by a Council for Technical Co-operation meeting regularly in Colombo and served by a Secretariat - the Colombo Plan Bureau. The Council publishes in Colombo an annual report, the latest of which was that issued in October, 1960.

6. The help which one member of the Colombo Plan extends to another is arranged bilaterally. The initiative is with the country in the region. It submits a case for capital assistance (for an electric power scheme, for example), for an expert to advise or train its own specialists, or for

training facilities in other countries. Countries outside the region provide the finance, equipment, experts or training facilities to the best of their abilities; but to an increasing extent the countries of the region are extending mutual aid to one another.

7. The original six-year limit on the Plan's operations was extended at the Singapore (1955) meeting of the Consultative Committee by four years i.e. to the end of June, 1961. It was also decided at Singapore to consider the future of the Colombo Plan at the 1959 meeting of the Consultative Committee. At Jogjakarta the Consultative Committee agreed to extend the Plan for another five years on the understanding that the 1964 meeting would consider the period of its further extension.

Progress in the Region.

8. The ninth annual report (1960) of the Consultative Committee stated that broad trends in the world economy in 1959/60 provided a favourable environment for continuing progress in the Colombo Plan area. There was a marked improvement in the export earnings of the Colombo Plan countries as a whole in 1959/60. The level of reserves in most of these countries was considerably higher in June, 1960 than in June 1959. Agricultural production rose for the second successive year - the rice harvest being a record. Industrial production rose substantially.

9. The ninth annual report indicated an increase in both public and private expenditure on economic development during the year. The object of development policy continued to be the achievement of greater, and, in many cases, more diversified production. It is difficult to make an authoritative assessment or comparison of expenditure on development by Governments in the area. The available statistics are compiled on differing bases and differ in coverage and budgetary periods. Price levels also vary, and the significance of public investment varies from one country to another. On the information available, however, development expenditure by the public sector (tabulated below) seems to have increased significantly.

GOVERNMENT EXPENDITURE UNDER DEVELOPMENTAL HEADS.

(£ Million at a constant rate of exchange)

Country	1958-59 or 1958 actuals	1959-60 or 1959 revised estimates	1960-61 or 1960 budget estimates
Burma (1)	32.7	40.4	36.8
Cambodia	Not available	Not available	8.8
Ceylon	35.8	38.5	39.0
India	748.5	754.5	810.0
Indonesia	44.7	51.0	144.0
Laos	3.8	5.4	8.9
Nepal	1.6	5.7	15.2
Federation of Malaya	61.0	63	85.6
Pakistan (2)	137.0	144.3	166.5
Philippines	123.7	123.7	144.1

Country	1958-59 or 1958 actuals	1959-60 or 1959 revised estimates	1960-61 or 1960 budget estimates
North Borneo	3.0	1.5	2.5
Sarawak	3.0	3.2	4.5
Singapore	18.5	16.9	18.3
Thailand	29.3	24.2	23.0
Viet Nam	29.8	37.5	40.1

1. Figures for Burma include capital expenditure in public enterprises.

2. April 1958 - March 1959
April 1959 - June 1960
July 1960 - June 1961

Population

10. In the ninth annual report, the Consultative Committee noted that the countries of the Colombo Plan area, comprising only one-sixteenth of the world's land area, contained more than one-fourth of the world's population. It is one of the most densely populated areas of the world. Since 1950, population has increased at a rate greater than 1.5 percent, and, in some countries, by more than 2 percent. / National income, which ranges in most Colombo Plan countries from about three to five per cent per annum, has to cover the larger food requirements and other essential needs of a growing population as well as improved standards of living and capital formation. Countries of the area are aware of this problem and the need for increased productivity.

External Assistance

11. External assistance from Colombo Plan countries outside the region to those within has taken many forms. The United States has supplied economic and technical assistance and has financed commodity imports through the International Co-operation Administration. It has supplied loans and other forms of credit through the Development Loan Fund and credits for the financing of the dollar cost of capital equipment through the Export-Import Bank. In addition, substantial amounts of local currency resulting from the sales of agricultural commodities have been provided for economic development and other related purposes. The United Kingdom has provided loans and credits as well as capital aid and technical assistance. Some of this expenditure has been under the Colonial Development and Welfare Act. Australia and Canada have provided capital aid, including funds from the sale of agricultural and industrial commodities, and technical assistance. India has provided financial assistance to Nepal and a considerable amount of technical assistance to countries of the area. New Zealand and Japan have provided both capital and technical assistance. Burma, Ceylon, Indonesia, Pakistan and the Philippines offered training facilities and some other forms of aid.

12. In its ninth annual report, the Consultative Committee estimated that during the year the amount of aid made available from all Colombo Plan sources was more than $1750 million, bringing the total of aid since the beginning of the Colombo Plan to 30th June, 1960 to more than $8000 million.

13. As at 30th June, 1960, the United States had supplied

to the Colombo Plan region aid valued at about $7378 million since 1951. The United Kingdom had supplied capital aid and technical assistance to the value of £170,700,000. Canada had allocated $282 million to the end of the fiscal year 1959-60 and a further $50 million was allocated by the Canadian Government in 1960-61. Australia had spent £A36,800,000 to 31st December, 1960, and New Zealand had appropriated NZ£9,315,000 to 31st March, 1960. Japanese budgetary appropriations for technical assistance were equivalent to approximately A£1,293,000 at the end of the 1960-61 fiscal year, and its actual disbursements and allocations for capital assistance were equivalent to approximately A£9,510,000 at 30th June, 1960.

14. From 1st July, 1950 to 30th June, 1960, training had been given to more than 23,000 trainees, and the services of almost 11,600 experts had been provided to countries in the area by members of the Colombo Plan and by the United Nations and its agencies. Total expenditure on the supply of technical equipment under the Colombo Plan amounted to £9,500,000 sterling for the period, 1st July, 1950 to 30th June, 19 60.

15. The following table shows the number of training awards and experts received by countries in the area from Colombo Plan sources (excluding the United States, for which figures for only the last one or two years are available) and from the United Nations and its agencies :-

	AUSTRALIA (31/12/1960)		OTHER C.P. COUNTRIES EXCEPT AUSTRALIA & U.S. (31/12/1960)		UNITED NATIONS (30/6/1960)	
Country	Training Awards	Experts	Training Awards	Experts	Training Awards	Experts
Brunei	17	1	1	-	2	3
Burma	303	11	554	67	580	687
Cambodia	9	10	44	24	102	202
Ceylon	226	52	963	340	229	531
India	412	19	1788	197	1216	1382
Indonesia	587	38	650	74	501	895
Laos	5	5	80	15	88	109
Malaya	408	80	434	48	112	153
Nepal	13	2	1032	3	95	189
North Borneo	111	16	76	13	14	41
Pakistan	294	49	1262	177	645	950
Philippines	193	13	376	5	376	364
Sarawak	112	16	97	12	21	36
Singapore	190	52	66	16	53	72
Thailand	202	16	409	39	592	614
Viet Nam	102	16	197	46	86	193
Mekong Project	-	13	-	-	-	-
Regional	-	-	-	-	15	769
	3184	409	8029	1076	4727	7190

Other Sources of Aid.

16. Other organisations and countries outside the Colombo Plan have also contributed to development in South and South-East Asia. To some extent their interest has been stimulated by the Colombo Plan. The International Bank, for example, has made 49 loans totalling over $1107 million to countries in the area by 30th June, 1960.

17. An outstanding example of co-operation under the International Bank is the Indus Basin Development Fund. The total cost of this scheme is estimated to be approximately $1070 million. The main contributors to this Fund are as follows :-

Australia (£A6,900,000), Canada ($22,100,000) Germany (DM 126 million) New Zealand (N.Z. £1 million) United Kingdom (£20,860,000) and the United States ($177 million). In addition, India is contributing £62,500,000 sterling and Pakistan amounts of or equivalent to £440,000 and £9,850,000 sterling. The United States is making loans of $70 million and $233 million to Pakistan, and the Bank is making a loan of $80 million to Pakistan.

18. In September, 1960, the Bank set up the International Development Association to promote economic development in the less developed areas of the world, in particular by providing finance. Australia has completed action to become a foundation member of the International Development Association and will contribute $20,180,000 over the next five years, a proportion of which may be expected to benefit Colombo Plan countries.

19. Non-governmental organisations, such as the Ford, Rockefeller, and Asia Foundations, have provided considerable assistance to the Colombo Plan region. In 1959, $12 million were provided by these three organisations alone. In addition, countries such as Germany, Israel, Italy, the Netherlands and Norway have provided credits for industrial projects and technical assistance.

AUSTRALIA'S CONTRIBUTION.

Training.

20. The main feature of Australia's contribution is the provision of 3184 awards for training in Australia to 31st December, 1960. Of this number 863 were still in Australia at that time. The main fields of study include engineering (480), education (346), public administration (314), nursing (222), agriculture (176), medicine and health (208). Substantial numbers have also been trained in such fields as accountancy, arts, economics, food technology, journalism, various branches of science, social studies and industry. The cost of the training programme excluding the efforts of voluntary helpers of many kinds had reached just over £4,700,000 by the end of December, 1960.

21. By 31st December, 1960, 2107 awards had been granted under the correspondence scholarship scheme, which was inaugurated by Australia in 1955. Main fields of study include accountancy, engineering, and various clerical and trade courses. Burma, Ceylon, India, Indonesia, Malaya, North Borneo, the Philippines, Sarawak, Singapore and Thailand have joined the scheme. Malaya has established a correspondence education scheme of its own, for which key personnel have been trained in Australia under the Colombo Plan.

22. The Colombo Plan training programme has apparently stimulated rather than diminished the interest of private Asian students in Australian schools, colleges and universities. In June, 1952 there were about 2,307 private students in Australia. By June, 1960 the number had grown to 7,918.

23. To meet the increased demand from Asian countries for training in Australia, the number of Colombo Plan trainees is being raised to somewhere between 900 and 1000. The process of building up the numbers in Australia and replacing those returning to their home countries, is, however, a slow one. The number of trainees in Australia has been over 900 since March, 1960, and dropped below this figure only in December, 1960 with the completion of a number of University courses. The numbers will rise again over the 900 mark in the first months of 1961 with the commencement of the academic year.

24. Technical assistance provided by Australia has taken two other forms - the loan of experts for advisory and instructional assignments ranging from a few weeks to as long as six years, and the supply of publications and equipment for research and teaching purposes. A total of 409 experts have been sent overseas at the request of Asian Governments in the last ten years, at a cost of £1,350,000. Of this number 61 were in the field at the end of December, 1960, the majority being in Indonesia, Malaya, Viet Nam, Sarawak, North Borneo and Singapore. Another 64 experts, additional to the 409 mentioned above, have visited member countries in Asia, primarily for the purpose of advising on the needs of those countries.

Technical Equipment

25. About 275 requests for equipment have been or are being met at a total cost to date of £1,470,000. The range of items supplied includes text books and Australian reference books for schools, universities, and technical training institutions; equipment (lathes, etc.) and tools for technical education; livestock and equipment for breeding programmes; radio receivers for education and information in remote villages; film projectors and similar visual aids for training centres; x-ray equipment for hospitals; agricultural research equipment; and many other items to be used in the fields of training and research.

Capital Aid.

26. Most of Australia's contribution under the Colombo Plan has been spent on providing predominantly Australian-made equipment for development projects in Asian countries or on gifts of commodities such as wheat, flour, fertiliser and copper which have been sold to raise counterpart funds for agreed developmental projects. More than 50 projects in twelve member countries have received Australian capital aid at a cost of more than £28,500,000.

27. The projects assisted by Australia cover a wide range including irrigation and preparation of land for food crops in Ceylon (£1,900,000), Pakistan (£3,980,000) and Indonesia (£300,000) and irrigation and electric power projects in India (£4,900,000); secondary industries in Burma (£270,000); municipal services in Cambodia (£260,000), Pakistan £2,500,000) and Viet Nam (£166,000); transport, communications and broadcasting in India (£5,340,000), Indonesia (£1,600,000), Pakistan (£1,900,000) Malaya (£446,000) and Cambodia (£481,000); and thermal power in Thailand (£90,000)

AID BY AUSTRALIA TO INDIVIDUAL COUNTRIES.

BRUNEI.

Technical Assistance

	Numbers	Expenditure (£A)
Trainees	17)	
Correspondence Awards	12)	 18,475
Experts	1)	
Advisers	3)	 446
	TOTAL	£18,921

BURMA.

Technical Assistance	Numbers	Expenditure (£A)
Trainees	303)	 400,533
Correspondence Awards	168)	
Experts	11)	 27,317
Advisers	12)	
Equipment Projects	32	 154,390
Capital Aid		
No. of Projects	3	 548,931
	TOTAL	£1,131,171

28. Of the 303 Burmese to train in Australia under the Colombo Plan, 83 have received training in mining and mineral research. Students have also studied engineering (26), forestry and forest products (18), education (18) and public administration (27). There are 53 Burmese students currently training in Australia.

29. The eleven Australian experts who have served in Burma have comprised an adviser on blood transfusion services, a veterinary expert, an architect to design an Institute of Public Administration, two textile technologists, a teacher of handicrafts, a neurologist, two heart specialists, a photo-geologist and an engineer.

30. Under the Technical Co-operation Scheme, Australia has provided livestock (cattle, pigs and hatching eggs) for Government Breeding Services (£34,600), equipment for training nurses (£2,000), machine shop equipment (lathes etc.) for a technical college in Rangoon (£23,200), film projectors and tape recorders for Education and Information Services (£20,300), a diamond drill and accessories (£9,000) for training in mineral drilling techniques, equipment for teaching industrial arts in schools (£14,800), and 320 radios for the Ministries of Education and Information (£21,850). Current projects include the provision of workshop equipment for the Burma Railways Board (£15,000), automotive training equipment for an Artisan Training Centre in Rangoon (£8,000), animal vaccine production equipment for the Veterinary Department (£1,450), stump jump ploughs for experimental use by the Department of Agriculture (£3760) and windmills also for experimental use by the Department of Agriculture (£3,200).

31. Australian capital aid has been mainly equipment required for preparing sites for factories to be established by the Industrial Development Corporation, a government organization (£148,700), and equipment for a brick and tile factory set up by the Ministry of National Housing (£120,175). Most of this equipment was for earthmoving e.g. trucks and tractors. 600 pumps for jute and rice growing (£280,000) have been supplied and other requests for a gricultural machinery are being met.

CAMBODIA.

Technical Assistance

	Number	Expenditure (£A)
Trainees	9	14,435
Correspondence Awards	-	
Experts	10	68,611
Advisers	3	
Equipment Projects	7	66,141
Capital Aid		
No. of projects	4	736,868
	TOTAL	£886,055

32. Australia has granted 9 training awards to Cambodia under the Colombo Plan. Three students have studied education in Australia, three have studied medicine and health, two have done Arts courses and one studied transport. Our Cambodian training programme is hampered by the difficulty of finding persons with sufficient knowledge of English to benefit from training in Australia. The possibility of bringing Cambodian students at the secondary level to Australia is being examined.

33. Teachers of English have comprised the majority of Australians who have gone to Cambodia on Colombo Plan assignments. Of the others, an engineer has undertaken two assignments concerned with the installation and maintenance of equipment.

34. Workshop equipment, valued at £39,000, for the Cambodian Railways Apprentices' School, was provided by Australia, together with livestock and equipment for Veterinary Services (£5,550), handicraft tool sets for primary schools (£1,134), 150 radio receivers for the Ministry of Information (£5562) and two prefabricated houses. Australia has also supplied a console-type tape recorder worth £850 for the Cambodian Broadcasting Service.

35. Until recently, Australian capital aid to Cambodia has been concentrated on a large municipal works programme. Trucks, roadmaking equipment and service station equipment have been provided at a cost of £149,200. A fully equipped municipal workshop and garage costing £115,000 has almost been completed in Phnom Penh. Four passenger carriages and 75 goods waggons have been supplied for the Cambodian Railways; they will cost approximately £476,000.

CEYLON

Technical Assistance

	Number	Expenditure (£A)
Training Correspondence awards	226) 266)	253,703
Experts Advisers	52) 8)	 172,035
Equipment Projects	37	 122,869
Capital Aid		
No. of projects	10	3,180,621
		TOTAL £3,729,228

36. Australia has trained 55 Ceylonese in education and another 18 in nursing. 31 Ceylonese are studying in Australia at the present time. Australia has also given 266 Correspondence awards, the main fields of training being Building Construction (36), Trades Courses (36) and Accountancy (50).

37. Of the 52 experts provided, only one is still on assignment in Ceylon. He is an adviser with the Taxation Department. The greater number of experts have been in the medical field.

38. Thirty-two equipment projects have been completed under the Technical Co-operation Scheme. These projects include the supply of equipment and publications for technical education and research (£69,835), medical and hospital equipment (£29,800), publications and Australian reference books for schools and universities (£7,927), agricultural equipment (£2,474) and wood treatment plant (£7,880).

39. Current equipment projects include the supply of timber milling and seasoning equipment (£6,650) for Ceylon's Forest Department, and an x-ray unit (£4,300) for the Veterinary Science Department of the University of Ceylon.

40. Capital aid given to Ceylon from Australia has included trucks, tractors and associated equipment (£549,223) for use in food production, irrigation equipment for the restoration of ancient irrigation tanks (£179,310), and transmitters and radio equipment for the Laksapana Power Scheme (£23,109). Several gifts of flour have also been made to Ceylon. The flour (valued at £2,429,000) has helped ease local food shortages, and the proceeds of its sale on the local market have been devoted to large developmental projects, including the erection and equipping of T.B.clinics and the restoration of irrigation tanks.

INDIA.

Technical Assistance

	Number	Expenditure (£A)
Trainees Correspondence Awards	412) 247)	485,149
Experts Advisers	19) 21)	40,120
Equipment Projects	19	158,314
Capital Aid		
No. of projects	12	11,335,958
		£12,019,541

41. A group of 24 steel engineers who arrived in June 1960 are now in training with B.H.P. and subsidiaries. India has 218 students doing correspondence courses at present, their main fields of training being Primary and Technical Teaching (87), Accountancy (30) and Engineering (27).

42. Twelve of the Australian experts to visit India have been medical specialists.

43. Australian agricultural equipment has been supplied to Government departments and research institutes (£45,850), 6 mobile cinema vans to the Ministry of Education (£31,700), a hospital launch for use in the Andaman and Nicobar Islands (£55,543) and equipment for an orthopaedic hospital (£510). Thirty-eight sets of Australian reference books have been provided to educational institutions and universities at a cost of £6,250. Current projects include the provision of wool research equipment worth £6,850 for government agricultural stations and an experimental road-building machine (£12,500) for the Central Road Institute.

44. One of the largest capital aid projects undertaken by Australia has been assistance in the expansion and development of the Indian Railways. Twenty-four diesel rail cars (£1,340,000) and 2,000 rail wagons (£3,078,246) have been provided. Electrical and radio equipment has been supplied, to All India Radio (£938,850) and the Ramagundam Thermal Power Scheme (£526,893). Earthmoving equipment for the Tungabhadra Dam project, valued at £668,418, has been provided, and to help meet the local costs on this project several shipments of wheat and flour were provided at a cost of £3,700,000. The funds raised from sale on the local market of £298,968 worth of wheat shipped in 1959 are being used for the construction of wheat silos at Calcutta. Wheat, copper and sulphate of ammonia valued at £734,449 were given to India during 1960, and the proceeds from their sale will be used for development projects. In addition 5,000 tons of skimmed milk are to be supplied in 1961 at an estimated cost of £500,000.

INDONESIA.

Technical Assistance	Number	Expenditure (£A)
Training Correspondence Awards	587) 274)	 1,134,370
Experts Advisers	38) 14)	 265,728
Equipment projects	21	 177,703
Capital Aid		
No. of projects	8	 1,918,862
		£3,496,663

45. More Indonesians have received training in Australia under the Colombo Plan than any other national group. Two hundred and two of them are still in training in Australia. The majority (110) of the Indonesians still here are studying engineering. There are 263 Indonesians taking correspondence courses, the main fields of training being Engineering (52), Clerical (41), Preparatory Diploma (43).

46. Australian bookbinding and photo-engraving equipment worth £15,300 has been supplied for the Djakarta Printing School. Eleven Australian experts have taught at the school, seven of whom are still in Indonesia. Two Australian experts

visited Indonesia in 1960 to examine a programme of Australian assistance to the Aeronautical Fixed Telecommunications Network.

47. Educational publications films and reference books on Australia have been provided at a cost of £23,800 for schools and universities in Indonesia. Other projects include the provision of six mobile cinema vans (£30,900) for mass education, hospital and orthopaedic equipment(£11,167) for the Solo Rehabilitation Centre (Java), trade training equipment worth £70,535 for vocational centres at Djakarta and Bandung, training equipment for a Civil Aviation Academy (£2,984), bus maintenance equipment (£15,478) and 30 horses for Serum production at the Pasteur Institute, Bandung (£5320) - Current projects include the provision of equipment for a food technology laboratory at Pasar Minggu and of two chipmunk aircraft for the Civil Aviation Academy.

48. A large capital aid project undertaken by Australia was the supply of 200 diesel buses (£1,284,000) for public transport services in Djakarta. Five Australian experts have served in Indonesia, advising on the running of the metropolitan bus service and assisting with the maintenance of the Australian buses. Three of them, 2 technicians and an adviser-manager, are still in Indonesia. Trucks and tractors valued at £202,907 have been provided for roadmaking; also trucks and cranes (£78,323) for harbour developments. Transmitters are being provided for Radio Indonesia at a cost of approximately £225,000.

LAOS.

Technical Assistance	Number	Expenditure (£A)
Trainees	5	7,446
Correspondence Awards -		
Experts Advisers	5) 3)	27,413
Equipment Projects	8	 19,669
Capital Aid		
No of projects	1)	 267,273
		£321,801

49. The main problem in regard to our Laotian training programme is that of finding persons with adequate knowledge of English. There are 4 Laotians who have recently arrived here - 3 for training in Air Traffic Control and one for an economics course.

50. Three English teachers, one engineer and one transport and communications supervisor have served in Laos as experts under the Colombo Plan.

51. Technical equipment supplied to Laos includes 150 radio receivers (£7,423) for remote villages, workshop and engineering equipment (£8,900) for trade schools at Vientiane and Savannakhet, 20 kerosene refrigerators (£2,160) for hospitals, and 100 transistor radios for the Ministry of Information.

52. The only capital aid given to Laos has been roadmaking and agricultural equipment (£267,273).

MALAYA

Technical Assistance

	Number	Expenditure (£A)
Trainees Correspondence Awards	408) 653)	 614,593
Experts Advisers	80) 15)	 252,870
Equipment Projects	22)	 41,222
Capital Aid		
No. of projects	2)	 451,597
		£1,360,282

53. A large part of Australia's assistance to Malaya under the Technical Co-operation Scheme has been in the field of nursing (88 students and 46 experts), medicine and health (26 students and 8 experts) and engineering (66 students and 1 expert). Malaya has more students using the correspondence scheme than any other country, having 553 correspondence students in training, the main fields being Accountancy (164) Engineering (83) and Clerical (50).

54. Technical equipment (tools and electrical equipment) has been provided for the Kuala Lumpur Technical College (£10,570). Other equipment supplied includes Australian reference books for educational institutions (£497), trade training equipment for schools and training centres (£8030) and machine shop equipment (£18,737) for the University of Malaya. Equipment (estimated £25,000) is to be supplied for a National Telecommunications Training Centre.

55. Six diesel rail cars (£438,000) were given to the Malayan Government as an Independence gift. In connection with this project, 9 railway engineers were brought to Australia for training with the manufacturers, and an Australian engineer assisted in bringing the cars into service. Equipment (£13,686) for the reticulation of water to villages has been provided and was installed by the villagers themselves.

NEPAL.

Technical Assistance

	Number	Expenditure (£A)
Trainees Correspondence Awards	13) -)	 22,223
Experts	2)	 5,594
Advisers	2)	
Equipment Projects	1)	 62
Capital Aid		
No. of Projects	1	 73,904
	TOTAL	£101,783

56. Nepalese trainees have studied engineering, animal husbandry and agricultural science. Recent arrivals have been in the fields of food technology, forestry, wool technology, radio and x-ray equipment and civil aviation.

57. Technical equipment, including an X-ray unit (£11,500), is being supplied to the Chest Clinic, Kathmandu.

58. A road building plant and workshop is being supplied. The plant is being operated and maintained with the help of two Australian experts. Transmitters and studio equipment are being supplied for Radio Nepal.

NORTH BORNEO.

Technical Assistance.

	Number	Expenditure (£A)
Trainees Correspondence Awards	111) 105)	 202,487
Experts Advisers	16) 3)	 44,287
Equipment Projects	23	 51,160
Capital Aid		
No. of projects	-	..... -
		TOTAL £297,934

59. A large number of the North Borneo students trained in Australia have studied education (17), medicine (20), engineering (11) and public administration (19). The total of North Borneo correspondence students has increased to 105, the main fields of training being Accountancy (22), Trades (17) and English (22).

60. Two Australian medical men, two nurses and three teachers have served in North Borneo under the Colombo Plan.

61. Technical equipment which Australia has provided includes audio-visual aids, agricultural and carpentry equipment (£4,630) for a Teachers Training College at Tuaran, machines and tools worth £5,580 for a Government Trade school, Jesselton, and carpentry tools for schools (£900). A Kadazan dialect dictionary and grammar were published in Australia and 4,000 copies supplied to North Borneo (£3,700). Current projects include the provision of equipment for three agricultural stations (£16,197) and the supply of equipment for bovine semen storage (£5,360) in connection with a programme for improving beef cattle strains. Semen will be supplied from Australia and techniques for handling and use will be demonstrated by an Australian expert. T.B. survey equipment (estimated £12,620) is being supplied for an anti-T.B. Campaign, and orders have been placed for machines and tools for the Government Trade School, Jesselton (estimated £13,470).

PAKISTAN

Technical Assistance

	Number	Expenditure (£A)
Trainees	294)	377,468
Correspondence Awards	-)	
Experts	49)	
Advisers	17)	183,380
Equipment Projects	24	190,528
Capital Aid		
No. of projects	21	8,992,374
	TOTAL	£9,743,750

62. Public administration (63), food technology (30), communications and wireless (18), industry (17) and agriculture (14) are the major fields of study chosen by trainees from Pakistan. In the last six months trainees have arrived to study wool technology, water supply engineering and wheat milling.

63. Engineers and Agriculturalists have made up the majority of Australian experts who have served in Pakistan.

64. One of the largest projects with which Australia has been associated in Pakistan is the Commonwealth Livestock Farm in the Thal, which has been developed for experimental purposes in a desert area with assistance from Australia, Canada and New Zealand. Australia has provided experts (11), livestock, and both capital and technical equipment for the Farm. Other technical assistance projects include the provision of equipment worth £38,200 for a telecommunications training centre at Haripur (an Australian expert is attached to the Centre), film projectors and electrical generators for the Ministry of Information (28,500), a windmill for experimental work in the Thal area (£1,160), equipment for demonstrating pest control in food grains (£6,800), agricultural equipment (£1,500) and equipment to the value of £12,980 to two hospitals. Australia is currently supplying additional equipment (£8,270) to the telecommunications training centre at Haripur, and additional equipment (£9,978) is being supplied to the maternity section of a hospital for families of service personnel.

65. Tractors and associated equipment were provided under the economic development programme for a food production scheme at a cost of £398,380. Drilling, pumping and electrical equipment was supplied for the Punjab Tubewells project, a large irrigation and land reclamation scheme, at a cost of £2,133,370. Other capital aid projects have included a pipe manufacturing plant for the expansion of the Karachi Water Supply (£282,249) - an Australian expert assisted with its initial operation - telecommunications and broadcasting equipment (£1,019,600), nine diesel locomotives and spare parts for the Pakistan Railways (£858,900) and pumping equipment for East Pakistan (£123,320). A marine radio beacon (£120,040) provided by Australia has been installed at Port Chalna.

66. Funds raised from the sale of gift wheat from Australia have paid for local costs on the Karachi Water Supply project (£2,000,000), and agricultural development schemes (£109,393), the purchase of cold storage plant (£200,000), canal links (£100,000) and silos (£291,814).

PHILIPPINES

Technical Assistance

	Number	Expenditure (£A)
Trainees Correspondence Awards	193) 66).....	232,349
Experts Advisers	13 ..... 2	12,664
Equipment Projects	13	60,589
Capital Aid		
No. of Projects	1	1,623
	TOTAL	£307,225

67. Filipino trainees in Australia have covered a wide variety of fields. In the last six months, trainees have arrived to study development banking, public administration, journalism, air traffic control, seed improvement and rural broadcasting.

68. The thirteen Australian experts who have served in the Philippines have consisted in the main of medical experts and advisers on school broadcasts.

69. Australia has supplied 500 radios for school broadcasts (£27,300), test equipment for the Civil Aviation Department (£2,802), books and publications to various institutions (£1,170), a wood treatment cylinder (£7,744), and equipment for a tanning training centre (£19,101). Current projects include the provision of equipment and instructors (2) for the Artificial Limb Factory at the National Orthopaedic Hospital, Manila and dairying equipment valued at £15,994 for six experimental centres.

70. Civil Aviation equipment consisting of transmitters and receivers is being provided as Australia's first capital aid gift to the Philippines.

SARAWAK.

Technical Assistance

	Number	Expenditure (£A)
Trainees Correspondence Awards	112) 76)	164,631
Experts Advisers	16) 3)	42,570
Equipment Projects	18	20,935
Capital Aid		
No. of Projects	.....	-
	TOTAL	£228,136

71. There are 41 trainees from Sarawak in Australia at present. Agriculture, medicine and health, engineering, public administration and education are the major fields of study.

72. One of the five Australian teachers in Sarawak is in charge of a group of rural Dyak schools. His office covers a number of single-teacher schools. An Australian teacher under an Australian headmaster is on the staff of the new Dragon High School. Another expert is training officers of the Sarawak Public Works Department in the maintenance of heavy earthmoving equipment. An Australian Anti-T.B. nurse is at present in Sarawak assisting with the implementation of a T.B. Control programme.

73. Technical and educational equipment provided to Sarawak includes the printing of a geography text book "Sarawak and its People" (£4,170); visual aids equipment for the Public Service Training Centre (£670), equipment for a veterinary laboratory and clinic at Kuching (£506), and machines, machine tools and equipment for the Long Lama Community Centre, (£6,194), and 100 transistor radios (£5,642) for school broadcasts. Current projects include the supply of woodworking equipment for four schools (£7,473), tools for the Tarat Agricultural Station (£340), equipment for the control of T.B. valued at £20,700 and a school bus and audio-visual aids and books for the Department of Education (£4470).

SINGAPORE.

Technical Assistance	Number		Expenditure (£A)
Trainees Correspondence Awards	190) 185)	.....	359,437
Experts Advisers	52) 7)	.....	96,391
Equipment Projects	17	.....	61,844
Capital Aid			
No. of Projects	-	.....	-
		TOTAL	£517,672

74. Trainees from Singapore have been mainly in the fields of engineering (53), public administration (31), medicine (29) and education (21).

75. Australian experts are training local people in the fields of air traffic control, aeronautical telecommunications and aircrew licensing, and social services. The Royal Australian College of Surgeons has held its F.R.A.C.S. primary examination on two occasions in Singapore under Colombo Plan auspices and will conduct a similar examination in 1961.

76. The largest technical assistance projects for Singapore undertaken by Australia have been the supply of electrical engineering equipment for the University of Malaya (£17,332), lathes and accessories for the Singapore Polytechnic School (£15,850), technical school equipment for domestic science and trades training (£8,000), books for schools

and universities, including a book grant for the University of Malaya (£6,590), and visual aids for the Teachers' Training College (£2,700). Australia has also supplied pigs and poultry worth £3,500 for livestock breeding programme and equipment worth £2,200 for a pilot T.B. survey in which Australian experts took part. Tuberculin and B.C.G. Vaccine (estimated £9,180) is at present being supplied to the Ministry of Health, and a further supply of pigs valued at £1,743 is being supplied for breeding purposes.

THAILAND.

Technical assistance	Number	Expenditure (£A)
Trainees Correspondence Awards	202) 55)	 287,660
Experts Advisers	16) 13)	 24,013
Equipment Projects	17	 99,292
Capital Aid		
No. of Projects	4	 331,757
	TOTAL	£742,722

77. Of the trainees received from Thailand, about one quarter are still in Australia. Training is being provided in statistics, artificial insemination and other fields.

78. An Australian veterinary pathologist is at present in Thailand to assist the Thai authorities increase production of serum and vaccines, particularly haemorrhagic septicaemia vaccine.

79. Australian medical equipment has been supplied to the Chulalongkorn Hospital (£10,650), radio receivers to the Ministry of the Interior (£7,896), serum-producing horses to produce serum to combat diptheria, tetanus, snake bite, etc., (£22,077), and Australian reference books for universities (£1,426). Five hundred radio receivers for the Ministry of Education have been supplied at a cost of £34,200 and 185 transistor sets, valued at £10,217, have been supplied to the Ministry of Education. Automotive training equipment worth £5,400 has been provided for the Chulalongkorn University, together with an X-ray plant for the Women's Hospital in Bangkok (£6,800). Current projects include the provisions of further X-ray equipment (£11,500) to Chulalongkorn hospital, vaccine production equipment (£1,628), X-ray equipment (£7,150) for the Prasat hospital, dairying equipment for Kasetsart University (£22,500), 50 more horses for serum production (£11,140) and tools and machinery for a technical training centre (£6,302).

80. To assist the development of the lignite mining industry, a screening and crushing plant and other associated items of equipment (£89,700) have been provided. Requests for rolling-stock, including 8 hopper wagons for the lignite plant and 100 high-sided wagons for the Thai Railways for the transport of lignite, and 2 small locomotives for the lignite organisation, are being met. 94 ambulances (£220,000) have been supplied for Bangkok and the provinces, and an expert is advising on their initial operation.

VIETNAM.

Technical Assistance

	Number		Expenditure (£A)
Trainees Correspondence Awards	102) -)	.....	147,745
Experts Advisers	16) 8)	....	89,894
Equipment Projects	16	.....	166,890
Capital Aid			
No. of Projects	11	.....	745,081
		TOTAL	£1,149,610

81. There are 53 Vietnamese trainees in Australia at present. Twenty-three of them are studying engineering and 17 are studying economics and commerce. Professor Amnvey Smerasutra returned to Vietnam in December after spending 2 months at Sydney and Melbourne on cancer research.

82. Australia is assisting Vietnam in the establishment of a modern dairy industry. At an experimental dairy farm at Ben Cat near Saigon which is being equipped and stocked by Australia (estimated cost is £90,000), seven Australian experts have helped to develop the farm and train Vietnamese in its management. Four Australian teachers of English have also served in Vietnam.

83. Australia's main technical equipment contribution has been in agriculture. Livestock and poultry breeding equipment worth £53,600 has been supplied for government breeding services. 400 radio receivers (£12,357) have been supplied for information services, while another 200 receivers (transistor type) are on order in Australia. Ten amplifiers (£6000) are also on order for the Ministry of Information.

84. Most of the equipment provided under the Capital Aid Programme has been in connection with land development. Projects include the supply of road rollers and tractors for municipal works (£103,960), earth-moving equipment for land clearance for refugee resettlement (£106,929), irrigation works equipment (£71,275), irrigation equipment for the Blao School of Agriculture (£18,068), and simple hand implements (£61,555). Sulphate of Ammonia (£258,000) has also been provided and insecticides are being shipped.

MEKONG PROJECT

85. Australia is one of the countries co-operating with the Committee for Co-ordination of Investigations of the Lower Mekong Basin. This Commitee was set up jointly by Cambodia, Laos, Thailand and Viet Nam. Australia has agreed to undertake the investigations of dam sites at Pamong (Laos) and Sambor (Cambodia) at a total cost of £182,000. Work is currently proceeding in the Sambor region. As at the end of 1960, Australia had spent approximately £75,000 on these investigations.

COLOMBO PLAN EXPENDITURE AS AT 31/12/1960.

Country	Technical Assistance	Capital Aid	Totals
Brunei	18,921	----	18,921
Burma	582,240	548,931	1,131,171
Cambodia	149,187	736,868	886,055
Ceylon	548,607	3,180,621	3,729,228
India	683,583	11,335,958	12,019,541
Indonesia	1,577,801	1,918,862	3,496,663
Laos	54,528	267,273	321,801
Malaya	908,685	451,597	1,360,282
Nepal	27,879	73,904	101,783
North Borneo	297,934	----	297,934
Pakistan	751,376	8,992,374	9,743,750
Philippines	305,602	1,623	307,225
Sarawak	228,136	----	228,136
Singapore	517,672	----	517,672
Thailand	410,965	331,757	742,722
Viet Nam	404,529	745,081	1,149,610
Mekong Project	75,000		75,000
	7,542,645	28,584,849	36,127,494
Misc. Expend.	431,728	235,054	666,782
	£7,974,373	£28,819,903	36,794,276

DEPT. OF THE SENATE
No. 302
Presented 20 APR 1961
CLERK OF THE SENATE

STATUTORY RULES.

1961. No. 48.

REGULATIONS UNDER THE CUSTOMS ACT 1901-1960.*

I, THE ADMINISTRATOR of the Government of the Commonwealth of Australia, acting with the advice of the Federal Executive Council, hereby make the following Regulations under the *Customs Act* 1901-1960.

Dated this seventeenth day of March, 1961.

DALLAS BROOKS
Administrator.

By His Excellency's Command,

DENHAM HENTY
Minister of State for Customs and Excise.

AMENDMENTS OF THE CUSTOMS (CINEMATOGRAPH FILMS) REGULATIONS.†

Interpretation

1. Regulation 4 of the Customs (Cinematograph Films) Regulations is amended by inserting in the definition of "film" in sub-regulation (1.), after the words "cinematograph film" (first occurring), the words "or a video tape,".

Reconstructio of films wher application is made by the importer.

2. Regulation 22 of the Customs (Cinematograph Films) Regulations is amended by inserting after sub-regulation (7.) the following sub-regulation:—

"(7A.) The last two preceding sub-regulations do not apply to or in relation to a video tape.".

Screening films and exhibition slides.

3. Regulation 23 of the Customs (Cinematograph Films) Regulations is amended by inserting after sub-regulation (3.) the following sub-regulation:—

"(3A.) The last preceding sub-regulation does not apply to or in relation to a video tape.".

The Sched

4. The Schedule to the Customs (Cinematograph Films) Regulations is amended by inserting in Forms 1, 2, 3 and 4, after the word "reels", the words "(*not applicable in the case of video tape*)".

* Notified in the *Commonwealth Gazette* on 23rd March, 1961.
† Statutory Rules 1956, No. 94, as amended by Statutory Rules, 1958, No. 68.

By Authority: A. J. ARTHUR, Commonwealth Government Printer, Canberra.
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