

secondary grammar or secondary technical and it is therefore at this point that parents and pupils make their selection. As far as is possible, these wishes are met by assigning the pupil to the desired type of school.

(C) Trade Schools

The Salesian trade schools recruit their pupils into the Primary section of the school by an entrance examination but the financial and other circumstances of the family are also taken into consideration. Promotion to the artisan classes, wherein trade training is dependent upon vacancies occurring as, for instance, when students who have completed their vocational education leave for employment. Selection for the various trades is based on intellectual capacity, the most promising pupils being trained as electro-mechanics and the least promising becoming carpenters.

(D) The Technical College

Applicants for entry to Technical College full-time course must show, firstly, a good general education to the level of Form V or, in the case of applicants from Chinese Secondary schools, Senior Middle III. Those who satisfy these requirements attend a competitive entrance examination, followed by interview and aptitude tests, and success at all three sections is necessary to gain a place in the College.

For part-time day and evening classes, students are graded by examination in order that they can be assigned to classes appropriate to their education and ability. All such entrants are expected to be in employment in trades or professions appropriate to the course for which application is made.

During their courses of study, whether full-time or part-time, efforts are made to guide students into employment best suited to their abilities.

5. Courses and Curricula

(A) Government Institutions

(1) The Technical College

The Technical College is divided into various Departments, all of which have their various day and evening classes. All full-time classes are taught in the medium of English and applicants for admission are required to have a general education to School Certificate level. The number of applicants is in excess of the places available and a competitive entrance examination is held in August of each year.

The Department of Building offers a full-time three-year course in building construction and drawing, field surveying, structural engineering, organisation and management and bookkeeping. About half the time is spent in practical work such as carpentry, joinery, bricklaying and surveying. Four months of each school year is spent in full-time attendance at building sites for practical training. The Department also offers a three-year "sandwich" course for Building Contractors' Apprenticeship Foremen and part-time day courses in building construction, sanitation and services for Health Inspectors and for Housing Managers.

The Department of Commerce provides two one-year full-time courses. One course concentrates on bookkeeping and the other on secretarial work, shorthand and typing. It is in this latter class that the majority of the women students enrol but others are to be found learning building construction and textile technology.

The Department of Mechanical Engineering full-time course is of three-year's duration. The subjects studied include heat engines and internal combustion engines, engineering drawing and machine design, strength of materials, applied mathematics, production engineering and electro-technology. Students spend approximately half their time in the workshops and laboratories where they are taught fitting and machining and where they work on steam and petrol engines and vehicles generally. Part-time day release classes for engineering apprentices are also provided by this Department, leading to Ordinary and Higher

Certificates in Mechanical Engineering.

The Department of Electrical Engineering offers a two-year course leading to P.M.G. Certificates in Wireless Telegraphy. Two other courses are also provided for radio officers, a conversion course for the P.M.G. 1st Class Certificate and a Radar Technician's Course. The same Department also offers a two-year full-time course for Radio Technicians. Mathematics and science, woodwork and metalwork electrical and telecommunications technology and technical drawing form an all-round course in which the students spend half their time in practical work.

The Navigation Department provides short courses for Masters' Mates and 2nd Mates' Certificates of the Department of Marine, qualifications which rank parallel with those of the U.K. Ministry of Transport. Radar Observers' courses are provided two or three times each year. A Pre-sea Training Course was opened in 1957 to enable young men to train for cadetships on merchant ships and eventually become ships' officers. Nearly half the curriculum involves practical studies, such as chart work, carpentry, splicing and boatwork.

The Department of Textiles Industries provides a full-time three-year course in weaving and spinning, testing and dyeing, with about half the student's time spent on practical work in the weaving and spinning shops and in the textile testing laboratory.

Industrial Chemistry and Laboratory Technicians' courses have recently been added now that staff and equipment have been provided for chemistry teaching. A large proportion of the curricula of both courses is devoted to practical chemistry.

The Day Departments of the College are also responsible for related evening courses in regard to curricula, staffing and equipment. The lecturers are recruited from the staff of the Technical College, the Victoria Technical School and other Government institutions and from local commercial and industrial firms. Courses are available in building construction, field surveying, advanced structures, industrial

chemistry, electrical and mechanical engineering, telecommunications, naval architecture, refrigeration and air-conditioning, automobile repair and maintenance, textile weaving and spinning, book-keeping and shorthand, together with preliminary courses in building and engineering.

The technical courses are divided into Senior and Advanced sections. The Senior courses require three-year's study and lead to the College Ordinary Certificate, comparable with the Ordinary National Certificate. The Advanced Course requires a further two years' attendance and prepares for the Higher Certificate, equivalent to a Higher National Certificate. The Preliminary Courses in Building and Engineering are intended for those students whose basic education is not up to the standard for entry to the Senior Technical classes. The duration of book-keeping and the shorthand courses is three years. In the majority of these courses, the medium of instruction is in English but a number of technical classes are conducted in Cantonese.

Fees are as follows:-

Full-time day classes: HK\$240 per year.

Part-time day classes: HK\$60 per year.

Evening Classes : HK\$30, \$40 or \$50 per year, dependent upon the grade of class in which the student is enrolled.

(2) The Victoria Technical School

The course is of five year's duration and the curriculum is that of a secondary technical school in which woodwork, metalwork and technical drawing are added to a general education. At the end of the first three years in the school, pupils sit for the Intermediate Technical Certificate which enables them if they leave the school at that stage to enter the Senior Course in the Technical College Evening Department as part-time students, continuing their education

after they have started working. In the fourth and fifth year, pupils study selected subjects they wish to offer for the Hong Kong School Certificate Examination (English, Civics, Chinese Language, Geography, Metalwork, Woodwork and Machine Drawing). There is also an internal examination, the Final Technical Certificate, which enables the holder to sit for the Technical College entrance examination (Day Classes).

Tuition fees are HK\$120.00 per year.

(3) The Ho Tung Technical School for Girls

This school provides a five-year secondary technical education intended to train girls for nursing, commerce, industry and housewifery. During the first two years, the subjects taught are the usual general academic subjects, together with handicrafts, cooking, needlework and housecraft. During this time, the girls are assessed for aptitude and ability and guided into one of the three main streams - commercial, domestic and industrial. Towards the end of the course, a considerable amount of time is devoted to practical work to prepare the girls for employment. The practical subjects are then:-

Commercial stream - book-keeping and typing;

Domestic stream - dressmaking and domestic science;

Industrial stream - dressmaking, domestic science, handicrafts (pottery, toymaking and embroidery).

Cookery covers both Chinese and European dishes, even as dressmaking includes both Chinese and European fashions. The course ends with the Hong Kong School Certificate examination, which now includes technical papers in dressmaking, handicrafts and commercial subjects.

Fees are HK\$120.00 per annum but it should be noted that in all of the three government institutions referred to above remission of fees is given to

the pupils who come first in their class. Remission of fees is also permitted to needy students, up to a maximum of thirty per cent of the total student enrolment.

(B) The Salesian Trade Schools

(1) Aberdeen Trade School

This is a well-equipped boarding school with accommodation for 350 boys of whom some are in the primary section and from which promotion is obtained into the apprentices section as vacancies occur. In the apprentices or "artisans" section, the boys receive a general education and serve a full apprenticeship within the institution as mechanics, electro-mechanics or carpenters. More than half the students' working week is spent in the workshops and during the last two years of apprenticeship a great deal of production work is undertaken which provides good craft training and some profit to the school.

As an alternative to the above curriculum, the school also provides a secondary school stream which will combine vocational education with a broad, general education and lead the brighter students to the Hong Kong School Certificate.

The inclusive fee for tuition and boarding is HK\$750 per year, plus an additional \$100.00 per year for mechanics and electro-mechanics during the first three years of apprenticeship but these figures apply only to 200 of the boys. The remaining 150 pay no fees, these being paid by the Executive Committee of the School.

(2) Tang King Po School

This school provides a general education to the standard of Senior Middle I together with trade training in shoemaking, tailoring and printing. Each of these courses of training requires five years and is designed to produce a fully-trained craftsman. It is not a boarding school but a free midday meal is

provided for the trainees. The school has also commenced a secondary technical stream to provide a wider general education with pre-apprenticeship training, leading to the Hong Kong School Certificate examinations for the brighter pupils.

Fees are HK\$350 per year.

(C) Private Vocational Schools

(1) Far East Flying Training School

Training is provided for pilots, a radio mechanics, wireless operators and aircraft engineers up to the standard for British licences. Entrants to the engineering and radio courses are required to have a general education to Senior Middle III or Form V standard. The engineering courses are by far the most popular and require two years' full-time attendance. The courses are taught in English or in Chinese, being operated in parallel. Training is divided equally between theoretical instruction and practical work. Shorter courses in special subjects are also available, some of these being taught in the evening.

Several courses in radio and radar subjects are offered, also taught either in English or Chinese, with a duration of 18 months for technicians and 12 months for operators. Again, shorter courses are also available in special subjects. Enrolment into the flying courses is today very limited, being almost entirely restricted to students who wish to learn flying only as a hobby.

Tuition fees vary from HK\$50 to HK\$125 per month, dependent upon the type of course being followed.

(2) Hong Kong Chamber of Commerce School

This school, organised by the Hong Kong Chamber of Commerce, operates entirely as an evening school and provides classes in book-keeping, shorthand and English. Students are prepared for Pitman's examinations in shorthand and for the London Chamber of Commerce examinations in book-keeping. Tuition fees

are \$25.00 per month.

(3) Other private Schools

The remaining private technical schools and colleges in the Colony cover a wide range in enrolment, in efficiency and in the courses offered. At one end of the scale are the post-secondary colleges whose prospectuses show courses in engineering, mostly civil, and at the other are small night classes giving short, practical courses in needlecraft, radio servicing and automobile repair. In the post-secondary colleges teaching is in Chinese and an effort is made to teach up to degree levels.

The private commercial schools vary widely in efficiency and student enrolment. Almost all of them provide single subject courses, usually shorthand or book-keeping and arrange the attendance to suit the student; that is, part-time day or evening attendance is possible and the number of hours per week is arranged to suit the student's pocket or his free time.

6. Technical and Administrative Personnel

(A) Status

The teaching and administrative staff in Government institutions for technical education comprise both local and expatriate officers. The qualifications required of teachers are:

Education Officer (Technical): A good degree and or corporate membership of the appropriate professional institution, together with adequate practical experience in a responsible position.

Master (Technical): Professional or technical qualifications, such as graduate membership of an appropriate professional institution, together with adequate practical experience.

Assistant Education Officer (Technical): a recognised degree and a course of practical training or ade-

quate practical experience.

Technical Teachers: Technical College Diploma or its equivalent and adequate practical experience.

Workshop Instructors: a good basic education and first-class ability as a craftsman.

The salary scales for teachers in technical institutions form part of the general salary scheme of the Hong Kong Government and are parallel with those for teachers and engineers in other branches of government service. The salary scales also accord with the general wage structure in Hong Kong. Details are shown in Appendix II.

(B) Selection

Full time staff for government technical institutions are recruited, as far as is practicable, from local applicants. Selection is then carried out by a locally appointed selection committee, comprising technically qualified staff of the Education Department, which makes recommendations to the Public Services Commission on the proposed appointment. In the event of no suitable candidate being found locally and with the permission of the Public Services Commission, recourse is had to advertisement of the post overseas, usually in the United Kingdom. Selection of a suitable candidate in that country is then made either by Colonial Office experts or by staff of the Crown Agents for Overseas Territories.

(C) Training

Where practicable, preference is given to teaching staff from the United Kingdom who possess a Technical Teacher's Certificate or a Teacher's Diploma. Such qualifications are not yet common among the staff of technical institutions and cannot therefore be considered obligatory. Where a technical teacher lacks this special training, efforts are made to guide and assist him to acquire effective teaching skills. With this purpose in mind, in 1952 the Hong Kong Government sent a member of the Technical College full-time staff for a one-year course to the Garnett College for Technical Teacher Training in London.

Since his return to Hong Kong this officer has given several series of lectures to groups of full-time and part-time staff of technical institutions on the teaching of technical subjects.

(D) Part-time teachers

Part-time teachers are employed in large numbers, chiefly for the classes of the Technical College evening department. For general subjects, such as English and mathematics, qualified teachers of the Education department are employed. For technical subjects, full-time staff of the Technical College are assisted by qualified engineers, builders and technicians employed in the dockyards, the Public Works Department and in local engineering firms.

Part-time teachers are paid on hourly rate which varies with the academic level of their instruction. The keenness and enthusiasm of this body is remarkable and plays a great part in the success of technical education in Hong Kong.

7. Buildings and Equipment

- (A) The Technical College, completed as recently as November, 1957, consists of a five-floor classroom block which contains the administration offices, classrooms, drawing offices, laboratories and special rooms for teaching such subjects as radar, wireless telegraphy, seamanship, photometry and telecommunications; a laboratory block for heat treatment, strength of materials and electrical machines; and a group of workshops for brick-laying, carpentry and joinery; a fitting and machine shop, foundry, heat engines laboratory, weaving, spinning shops and a blow room. A theatre assembly hall with a student's canteen has recently been added to the buildings listed above. In addition, further laboratories for electrical machines and instruments making; dental mechanics and production engineering workshops and a dyeing and finishing shop are now being planned.

The equipment of the College is at a high level. All laboratories, for applied mechanics, general science,

chemistry, magnetism and electricity and telecommunications, are fully equipped for post-secondary work. The workshop for machine shop practice contains lathes, shapers, millers, power saw and drills. The heat engines laboratory includes diesel and petrol engines and is to have boiler, steam engine, steam turbine and a variable compression experimental engine. The forge and foundry contain a cupola furnace and a crucible for non-ferrous metals. The blowroom, spinning and weaving shops will, when fully equipped, comprise a small industrial plant, while the textile testing laboratory will permit commercial testing and research work. The Navigation Department possesses a small vessel for training in boatwork, a Sperry gyroscope, echo-sounder, a deviascope and a large number of models. For telecommunications, one room is fitted as a ships W/T room and another contains two radars. The Department of Commerce has a special typewriting room and another for office appliances while the Building Department has, in its carpentry shop, a planer and thicknesser, circular, band and pendulum saws, mortiser and lathe. A spindle moulder and tenoner are on order for this last-named workshop.

- (B) The Far East Flying Training School owns a classroom & workshop bldg. and a hangar at the Kai Tak airport. The workshops are equipped for aero-engine overhaul and for radio repairs. There is also a workshop for aero frame instruction. The hangar houses four aircraft, an Oxford, an Auster, a Tiger Moth and a Stinson.
- (C) The Aberdeen Trade School occupies a group of buildings near the fishing village of Aberdeen which include spacious, well-lighted workshops. For the mechanics and electro-mechanics, there is a preliminary workshop for training in bench-fitting only. The apprentices then move in their second year to full-equipped workshops containing lathes, miller, shapers and a planer. A small foundry is adjacent to the mechanical engineering workshop. The carpentry shops include a woodworking machine shop equipped with planer and thicknesser, saws and a spindle moulder.
- (D) The Tang King Po School is of modern construction and combines a primary, secondary and trade school within the same buildings. By far the best equipped section of

the trade school is the printing section which contains a large amount of modern machinery for ordinary and colour printing imported from Europe. Book-binding equipment is also supplied. The tailors' and boot-repairing shops are equipped on a smaller scale.

- (E) The Victoria Technical School contains woodwork and metalwork shops for instructing the pupils in basic skills only and machinery is held on only a small scale. This includes a band saw and two lathes in the woodwork shop and in the metalwork shops are lathes, drills, power saw and a shaper. The foundry in this school has a small gas-fired crucible for castings of non-ferrous metals.
- (F) The Ho Tung Technical School for Girls is equipped for a wide variety of handicraft teaching. In the "wet-room" are potters' wheels and a modern kiln. The "dry-room" contains a lathe and a band saw. The sewing room has a variety of hand and treadle machines and another room is fitted for general art and screen printing for fabrics.
- (G) The private schools for trade training cover a wide range in accommodation and in equipment. Most of these offer courses in radio servicing where the equipment required is small and comparatively inexpensive. The vocational education centres operated by charitable bodies are, however, usually more adequately equipped for teaching such trades as boot-repairing and carpentry.

8. Audio-Visual Aids

All government institutions for technical education are equipped with 16 mm. sound film projectors and with film-strip projectors. For films and film-strips of a highly specialised nature, the institutions maintain their own library but films and film-strips of a more general application are held in a central film library in the Education Department. The Salesian Trade Schools are also equipped with film projectors.

All technical and trade schools are adequately equipped with wall charts and diagrams for the teaching of technical subjects.

9. Textbooks and Documentation

Text-books printed in Chinese are available for use at the lower academic levels of vocational and technical education, but not at the higher levels. In practice, therefore, Chinese textbooks are used where possible for the training of craft apprentices and for technical education at lower levels but it becomes necessary to employ textbooks published in the United Kingdom for studies at advanced levels. This imposes no hardship on the students because all work at this higher level is taught in the medium of English and, in addition, many employers in Hong Kong require a good knowledge of written and spoken English from their staff.

All institutions maintain students' records in order to provide transcripts of study when these are needed for the transfer of students to institutes of higher education and for reports on students when called for by prospective employers.

10. Inspection and Control

The inspection and control of institutions for vocational and technical education in Hong Kong is a responsibility of the Director of Education and falls within the province of the Assistant Director of Education (Inspectorate). This Inspectorate staff includes specialists in handicrafts and technical education who carry out inspections from time to time of all government, aided and private schools engaged in vocational and technical education. Where necessary, the advice is sought of the Principal of the Technical College or members of his staff where their particular qualifications enable them to make a more detailed and searching inspection of the school involved.

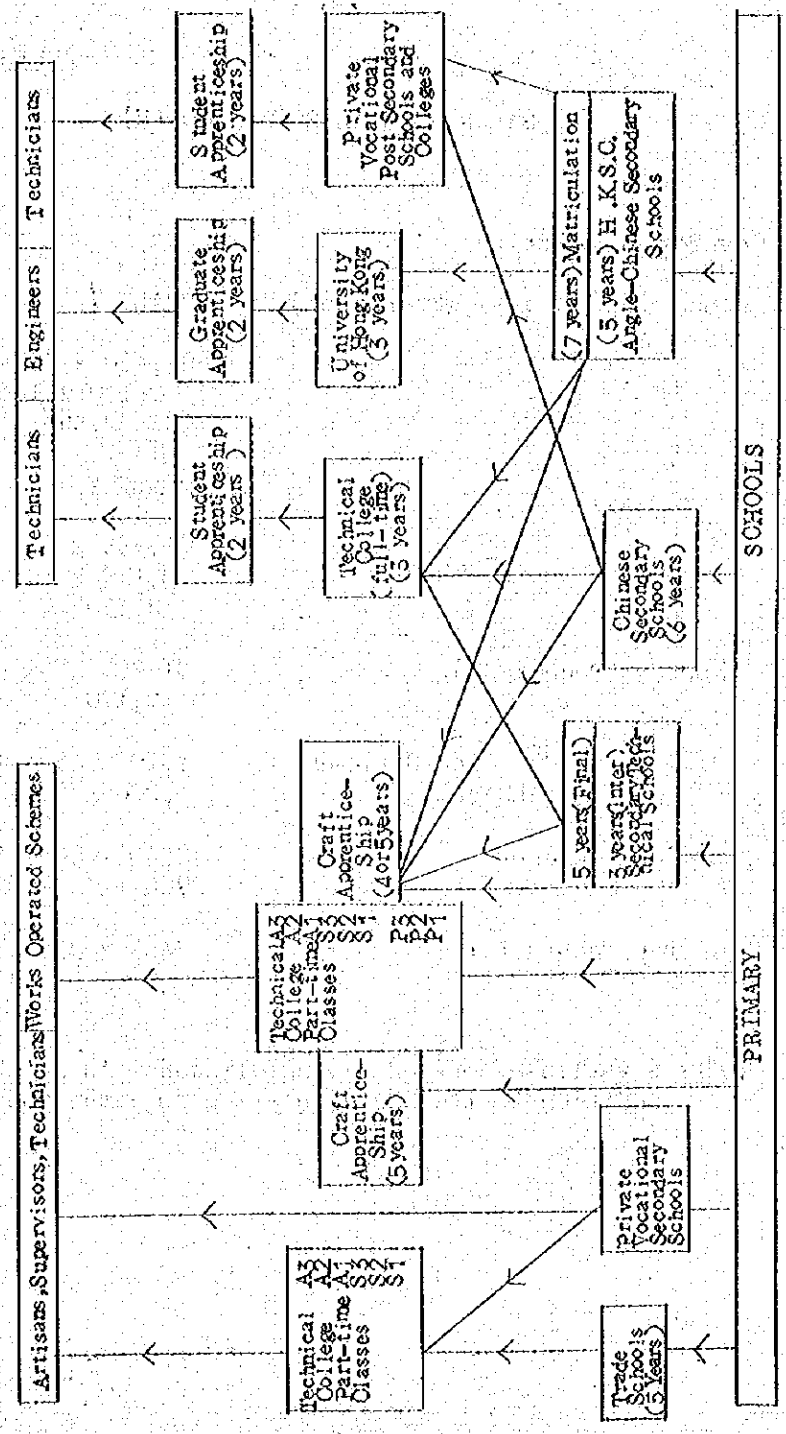
Before a new technical school can open or a school can offer new or additional courses in vocational or technical training, the Director of Education, through his officers, satisfies himself on the following points: the suitability of the curriculum and the ability of the staff to teach the subjects of that curriculum, the suitability of the accommodation and the scale of equipment for the proposed course related to the number of students which it is proposed to enrol.

Attention is also paid to the tuition fees which it is proposed course and the employment possibilities for students who complete the course. The premises and equipment are inspected by officers of the Education Department and also by officers of the Medical Department and the Fire Brigade. All these points must be satisfied before permission to open is granted. After this has been granted and the course is in operation, inspection is carried out from time to time to ensure that the original conditions upon which permission to open was granted are still being observed and that the school or the course is being conducted satisfactorily.

11. Finance

Technical education is expensive and financial provision for it must be considered in relation to education generally and government expenditure as a whole. Nevertheless, technical education in Hong Kong has always received sympathetic consideration from government and a fair share of the available funds. Development of vocational and technical education in the Colony has proceeded at a reasonable pace during the recent years as is shown by the new Technical College and the new Victoria Technical School and by the plan to establish a new secondary technical school on the mainland of Kowloon during the coming year. It can be said that no reasonable request for government funds to be devoted to the expansion of vocational and technical education has ever been refused by Government.

TECHNICAL EDUCATION



APPENDIX II

SALARIES SCALES (PER MONTH)

36

Government Schools

Education Officer (Technical)	SCALE V \$1,460 x 80 - 1,540 x 90 - 2,170 x 180 - 2,350 x 90 - 2,530 SCALE X \$1,395 x 65 - 1,720 x 90 - 2,170 x 180 - 2,350 x 90 - 2,530
Master (Technical)	\$1,265 x 65 - 1,720 x 90 - 2,170
Assistant Education Officer (Technical)	\$870 x 45 - 1,050 x 50 - 1,200 x 65 - 1,330
Technical Teacher	\$540 x 30 - 560 x 35 - 780 x 45 - 825
Workshop Instructor	\$465 x 35 - 780

NOTE: A variable cost of living allowance is payable in addition to the basic salaries as given above.

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Appendix:

1. A short history of the development of Vocational and Technical Education

The beginning of technical education in India can be traced to the middle of the nineteenth century. The East India Company by its well-known despatch of 1854, also known as the Wood's Despatch reviewed the development of education, with a view to imparting practical knowledge to Indians. The main recommendations contained therein pertained to the creation of separate Departments of Public Instruction, the setting up of Universities and the establishment of several high schools. This despatch also showed its anxiety to see that Government took active measure to achieve the object of providing Indians with useful and practical knowledge suited to every station of life, for which purpose they were prepared to sanction substantial funds.

The year 1857 saw the setting up of Universities in Bombay, Calcutta and Madras, the then Presidency Towns of India. This had its significant influence on education at all levels.

The need for providing technical education to Indians was first indicated by the Indian Famine Commission in the year 1880.

Thereafter, in the year 1882, an Education Commission which has come to be known, as the Hunter Commission was appointed by the Government of India to review education in the country. The Commission opined that as a majority of the students did not study beyond either the post-primary or at the most the high school stages, education to be received by them should be thorough and sound as far as possible. The Commission also opined that - secondary education should be on a grant-in-aid basis, as far as it may be possible, and that Government should withdraw from direct management of such schools at an early date. This Commission also stressed the need for diversification of courses at the secondary stage, one side leading to the University type of education and the other to that type of education which would enable the pupils to pursue commercial, vocational or non-literary careers.

In 1886, Government of India came out with a memorandum on technical education which endorsed the Education Commis-

sion's recommendations to have a new technical side to the then existing literary schools as a distinct part of the educational system in the States.

In 1895-96, Government of India sent Sir E.C. Buck to the various provinces of India to discuss problems of education in general and practical education in particular in the primary schools. This was prompted by the desire to keep the pupils attending these schools, which also came from the craftsmen class, in the know of the use of hands so that they could benefit from technical instruction. However, progress in this direction was slow. It is, however, worth noting that one of the important observations of Sir Buck made in 1901 was that technical education should be under the control of a separate Department of Government.

By the beginning of the 20th century, it became evident that the scope and content of education as then imparted was not keeping pace with the needs of the country and the need for greater avenues of occupations for the educated was keenly felt. The then Viceroy of India Lord Curzon convened a conference in 1901 which suggested greater educational reforms. The conference observed that the industrial schools in the country had by then shown no specific purpose in view and that it was mostly private enterprise, that had guided them and that they had not kept in view the demands of industry. Government of India agreed with this and also agreed that trade schools should have educational and not monetary objectives in view.

A further study in the field of technical and vocational education was made when Government of India appointed a committee comprising of Lt. Col. E.H. De. V. Atkinson R.E. and Principal, T.S. Dawson in 1912 to probe into the problem of closer liaison between technical institutions and industry with a view to securing facilities for technical persons to be beneficial to industry, an apprenticeship for a couple of years would be requisite. One of the recommendations was that for smaller technical institutions to progress well, they should be placed under the control of a central technical institution in the provinces. In the State of Bombay, this recommendation was adopted, when in 1913 the State Government set up a Committee of Direction for Technical Education to work in collaboration with the Board of Trustees of the Victoria Jubilee Technical Institute, Bombay. The Committee was vested with the control of technical and industrial education in the State.

The subsequent attempt to review technical education in the country was carried out by the Industrial Commission which summed up in its published report of 1918, that "Laissez Faire" was the doctrine governing Government's policy in commerce and industry during the 19th century and that there was practically no attempt at providing proper technical training until almost at the end of the century. It also observed that the lacuna of local technically trained talent was made good by Europeans. The consciousness, therefore, began to grow that technical education ought to be provided in India for Indians if industries were to benefit. The Commission pointed out that in addition to technical institutions in the various States, certain institutions of a higher type should be provided in India, which an individual State could not afford to provide. It was, therefore, stressed that Government of India should alongside the efforts of the Provincial Governments set up colleges for higher education under its own aegis.

Later in 1921, the State Government of Bombay appointed a Committee known as the Visveswaraya Committee which, inter alia, recommended the setting up of part-time courses for apprentices under the auspices of Government and the formation of a Joint Directorate of Technical Education.

The year 1929 saw the appointment of another Committee, which is known as the Hartog Committee, which suggested diversification of courses so as to divert students to industrial and commercial careers at the end of the middle school period.

In 1934, the State Government of Uttar Pradesh appointed a committee known as the Sapru Committee to enquire into the unemployment situation prevailing in that State. It reported, inter alia, that at the secondary level, alongside the courses leading to the University, instruction should be offered in technical, commercial, industrial and other vocational subjects, and that vocational training should commence after the middle school level.

Thereafter, in 1936, Government of India invited Messrs. Abbot and Wood, two educational experts from England to advise on problems of educational reorganization and more especially on problems of vocational education.

They were requested to advise, inter alia,

- (1) Whether any vocational or practical training should be imparted in primary, secondary and higher secondary schools and, if so, what should be its nature and extent, and
- (2) Whether the technical or vocational institutions already in existence can be improved and, if so, in what manner and, if new institutions for vocational or technical training be required, to suggest the type of institution or institutions required for the purpose.

Some of the important recommendations of this Committee were:-

- (1) that the expansion of vocational education should not greatly outstrip the development of industry,
- (2) that every province should make a survey of the educational needs of its industries and commerce and determine the types of vocational education to be provided and its educational frame-work,
- (3) that vocational education should not be deemed as lower than literary education, as the purpose of education is to develop the powers of the mind, body and spirit for the welfare of society,
- (4) that general and vocational education are not essentially different branches but phases of a continuous process,
- (5) that a Government Advisory Council for Vocational Education including the Director of Public Instruction, Director of Industry, Principals of Technical Institutions, and business representatives, should be established in each Province, to secure co-operation between industry, commerce and education, and to draft curricula and syllabi and to advise on equipment etc., and
- (6) that apart from full-time schools, part-time schools be provided for the further education of those employed during the day.

This committee emphasised that no country could develop its trade and industry through the work of second-rate men only. In fact the report proposed a set-up of vocational institutions almost like the institutions of literary education. The committee envisaged engineering and technical education to be, apart from the vocational schools, of the following types:-

- (a) Technical Institutions or Polytechnics leading to Diplomas to cater for personnel required for supervisory positions in industry - a 3 year course after matriculation.
- (b) Degree courses in engineering or technology under Universities - a 4 year course after Intermediate in Science - to train personnel for senior supervisory positions in industry, railways, Government Department, etc.
- (c) Post-graduate training in Engineering or Technology in Universities or Higher Institutions - leading to Master's Degrees. This report found support in many States which since started technical, vocational, agricultural and commercial schools.

The second world war brought to the forefront the lack of adequate technical educational facilities for all grades of personnel. The Central Advisory Board of Education, which is an advisory body set up by Government of India, in 1944 submitted a report on Post-War Educational Development. This report is popularly known as the Sargent Report (after Sir John Sargent who was then Educational Adviser to the Government of India). The main recommendation of this report in so far as it pertained to technical education was to the effect that there should be 2 types of secondary schools - (i) academic and (ii) technical, both aimed at providing all-round education to the students to enable them to pursue careers on leaving the schools. The report also observed that technical instruction would be either a sort of pre-employment or post-employment training, either to fit the trainees for entry into industrial or commercial occupations, or to afford further opportunities to those already in employment to boost up their skill as craftsmen or so as to enable their rise further in their occupations. It also observed that the primary function of technical instruction was to satisfy the needs of industry

and commerce for (a) skilled craftsmen, (b) intelligent foremen and executives and (c) research workers.

In 1945, Government of India set up an All India Council for Technical Education which commenced a proper survey of Technical Education. Government of India also appointed a committee known as the Sarkar Committee to advise on facilities needed for higher technical education in the context of the post-war period. This committee recommended the setting up of 4 Higher Technological Institutions in the 4 regions of the country viz. Eastern, Western, Northern and Southern, where about 2000 under-graduates and 1000 post-graduate and research students would be trained annually.

In 1947, Government of Bombay appointed an Industrial and Technical Secondary Education Committee, known as the Joshi Committee, which surveyed the field of technical education below the collegiate stage, in the State of Bombay. It made several suggestions, one of the important ones of which was the suggestion for the formation of a Provincial Vocational Educational Council, with the Director of Public Instruction, Joint Director of Technical Education, Director of Industries and Chairmen, Secondary School Certificate Examination Board, as members, along with the representatives of Universities, Principals of Colleges, non-collegiate vocational institutions, industry, commerce, agriculture and non-professional institutions and labour. This recommendation among others was accepted by the State Government which, thereafter, set up the State Council of Technical Education with composition more or less on the lines recommended by this committee. However, commercial and agricultural education was excluded from the purview of this council. This council and its composition has since been the inspiration of such councils in some other states of India.

The Central Advisory Board of Education then appointed a University Education Commission in 1948, which has come to be known as the Radhakrishnan Commission, which also has surveyed the field of technical education and recommended, inter alia, that the existing engineering and technological institutions be regarded as national assets, and their usefulness improved, the number of engineering schools increased, particularly those for training of foremen, craftsmen, etc., that wherever possible existing engineering and technological colleges be upgraded for post-graduate training and research in selected

subjects, and that the Higher Technological Institutes, already recommended by the Sarkar Committee before, be started immediately.

This was followed by the Secondary Education Commission in 1952-53, also at the instance of the Central Advisory Board of Education, which recommended, inter alia, that technical schools should be started in large numbers either separately or as part of multipurpose schools, that central technical institutions should be established in larger places to cater to the needs of several local schools, that the technical schools should function in close cooperation with industries, the representatives of which may be associated with the planning and direction of such education, and the maintenance of standards, and that apprenticeship training being an important part of training, suitable legislation be enacted making it obligatory for industry to afford facilities to students for practical training.

2. The administrative structure of the educational system as it obtains today

Education in India, is the concern of the State Governments. The Central Government or Government of India limits its activity to co-ordinating the facilities and determines standards in respect of the higher fields of education, research and scientific and technological education. In regard to the other activities in the field of education, falling within the purview of the States, Government of India ensures co-ordination through the All-India Councils in the respective branches of education. Government of India also attends to the running of the four Universities at Aligarh, Delhi, Benares and Vishva Bharati, and other institutions of an All-India importance as Parliament decides. The Central Government also awards scholarships for the promotion of cultural relations with other countries and extends its co-operation with the international organizations.

The administration of education in this country is, therefore, divided between the Centre and the States.

3. Central Administration

At the Centre, the subject of education is looked after by two ministries - (1) the Ministry of Education, which looks after general education; and (2) the Ministry of Scientific Research and Cultural Affairs, which is responsible for education on the scientific, technical, research and cultural sides. Special type of education required to be imparted for specific purposes is looked after by the Ministry concerned to which the subject relates e.g. specialized training required for mining industries is looked after by the Labour Ministry, and so on.

Each ministry is headed by a Minister who is an elected representative of the people. In some ministries there is also a Deputy Minister, who is also an elected representative of the people. The Ministers are generally responsible for laying down policies. Each ministry has its own secretariat, consisting of a Secretary, a Joint Secretary and a number of other administrative posts, borne on the permanent cadre of the Civil Services. The day to day administration and implementation of policies and programmes of the Ministry is carried out by the Civil Secretariat.

The Central Government is advised by expert bodies consisting of both non-official and official members. The following are the standing Boards and Councils advising on Education:-

- (1) The Central Advisory Board of Education.
- (2) The University Grants Commission.
- (3) The Planning Commission.
- (4) The All-India Council for Technical Education.
- (5) The National Council for Training in Vocational Trades.
- (6) The All-India Council for Secondary Education.
- (7) The All-India Council for Elementary Education.

The composition and functions of these Boards, Councils and

Commission are detailed in Appendix "Q" hereto. Some of these bodies carry out their functions through Standing Boards appointed by them for specific purposes. They also run some Central Institutions directly under their control.

The Central Government as stated earlier lays down the broad outlines of the educational policies. This is done in consultation with the Advisory Boards/Councils and it is the State Governments which implement and execute such policies, through their own administrative machinery.

4. Administration at the State Level

The principal States of India are 14 in number. They have their own administrative set-up of education. Broadly, however, the pattern is that the Department of Education is headed by a Minister, who is an elected representative of the people of the State. In some States, the Minister is assisted by a Deputy Minister, who also is an elected representative of the people. Below the Ministers, is the Civil Secretariat, headed by a Secretary and other administrative officers under him. Below the Secretariat is the Directorate of Education headed by a Director. In some of the States there is also a separate Directorate of Technical Education which looks after technical education, with a Director of Technical Education at its head. In other States where there are no separate Directorates of Technical Education, technical education is looked after by the Directorate of Education itself or by the Directorate of Industries of the State.

In the State of Bombay, which is one of the pioneer States in the field of technical education in India, the following administrative set-up obtains:-

MINISTER

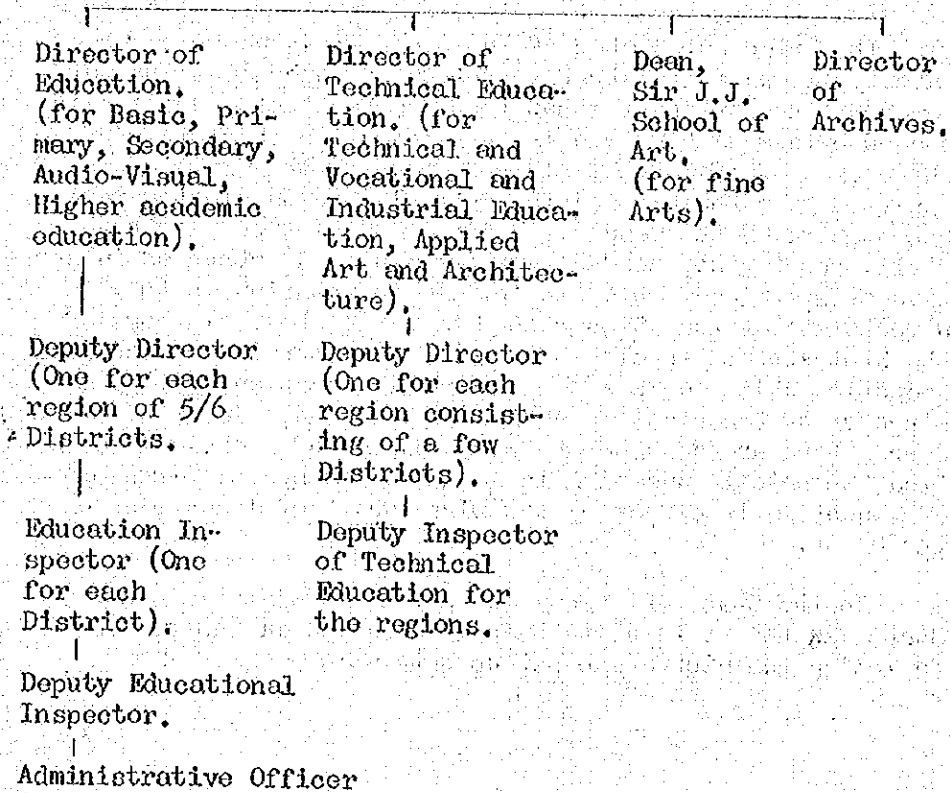
Deputy Minister

Secretary to Government, Education Department

Joint Secretary to Government

Deputy Secretary

Under Secretary and Assistant Secretary



.....

The State Government of Bombay has the following standing bodies to advise it on different facets of education:-

- (1) The State Educational Council.
- (2) The Board for Primary Education.
- (3) The Board for Secondary Education.
- (4) The State Council for Technical Education.
- (5) The State Council for Training in Vocational Trades.

It may be noted that collegiate education after the Secondary Stage in this country falls within the purview of the Universities set up under the Acts of Legislatures. These Universities are autonomous bodies receiving State aid. The various colleges for post-matriculation level of education are affiliated to these Universities for purposes of Inspection and Examination. The Universities prescribe the syllabi for the various degree courses and award their own degrees. Generally the head of the State is the Chancellor of the Universities in the State. The University has various Standing Bodies for different faculties of education like Engineering and Technology, Medicine, Agriculture, Arts, Science, etc.

Technical and Industrial Education up to the Diploma level not falling within the purview of the Statutory University is under the control of the Directorates of Government. These Directorates, however, control administratively the colleges affiliated to the Universities, by maintaining them directly or by giving grants-in-aid.

5. The Educational Pattern

It would not be out of place here to review in brief the pattern of education in India as it obtains today. No doubt it must be remembered that in the different States of India, there is a slight variation in the stages of education and types of institutions imparting education at these stages.

Generally speaking, however, at the pre-primary level there are the kindergaten schools, mostly managed privately, and in many cases not formally recognized, existing in a few States, where the children just get together with children of

their age, and under the guidance of the teachers learn, not by any rigorous schedule, but through recreational methods. The children enter these schools at the age of 3 or so and go on till the age of about 6, the pattern differing as between the different States.

The primary stage begins in some States rather early, but on the average it extends from the age of 6 plus to about 10 plus. Certain States have also introduced, though in very small numbers, the Junior Basic Schools in lieu of the primary schools.

In some State there exist the Higher Elementary or Vernacular Middle Schools, which teach the students generally upto Standard VII, where the medium of instruction is the mother tongue. These are, however, very few.

The Secondary School starts from Standard V (or grade V) and extends to Standard XI. These schools have broadly two stages, the lower and the higher. The lower stage extends from Standard V to VII, and in some cases these are styled as Middle Schools or Lower Secondary Schools. The higher stage is from Standards VIII to XI, generally. In some cases it is standards VIII to X. This marks the culmination of the secondary form of education. Thus, Standard X, or in some cases Standard XI, is the School Leaving or Matriculation Class.

Another type of school that has of late come up is the Higher Secondary School. This school is like the old school leading to the school leaving class plus an extra year of study taken from the collegiate level of education.

Thereafter the University course is generally of 4 years leading to a basic degree. The first 2 years are upto the Intermediate stage, and the next two years are of the degree course. Where, however, the Higher Secondary Schools are established, there are 3 year degree courses thereafter.

Thus it will be seen that the primary stage is generally of 4 years, the secondary course thereafter is of 6 years (called the lower Secondary) or 7 years (called the Higher Secondary). After the lower Secondary the student can go out for service or spend an extra year in a pre-University class to go in for a 3 year degree course. After the higher

secondary (or pre-University) there are the 3 year degree courses. For those who wish to go in for professional courses, after the higher Secondary course or pre-University course, there is a pre-professional (pre-Engineering) course leading to a 3 year professional degree course.

In some States there are also Intermediate Colleges affiliated to the Boards of Secondary and Intermediate Education, which are distinct from Universities, and conduct their own examinations which are precursors to the degree examinations. Thereafter the students have to join other Degree Colleges for their subsequent 2 year degree courses.

In some States however, the 4 year degree courses are still in vogue, after the matriculation or Secondary School Certificate Examination. The professional courses can then be taken after 2 years of intermediate stage in the Science Faculty.

6. The New Higher Secondary School.

It will be pertinent here to examine the new Higher Secondary School in a little more detail. The Secondary Education Commission (1952-53) after noting the existing pattern of institutions catering for the different age periods has recommended an educational reform as follows:-

After the 4 or 5 years of Primary or Junior Basic Education to have:-

- (1) a Middle or Junior Secondary or Senior Basic stage which should cover a period of 3 years, and
- (2) a Higher Secondary stage which should cover a period of four years.

According to this pattern, there will be:-

- (a) 8 years of integrated elementary (basic) education - age group of 6 to 14.
- (b) 3 years of secondary education proper with provision for diversification of courses - age group of 14 to 17.

- (c) 3 years of University education for the first degree, which has already been recommended by Commissions before.

This will ensure that when free and compulsory education is extended upto the age of 14, as contemplated by the Constitution of India, there would be a uniform pattern of education till the age of 14, with provision for diversified courses at the higher secondary stage of 3 years (14-17 age). The Secondary Education Commission of the Government of India was of the view that secondary education is a complete unit by itself, at the end of which a person should be able to set out in life and take some useful vacation according to his aptitudes. The diversified courses would therefore be in humanities, science, technical, commerce, agriculture, fine arts, home science, with the compulsory study of core subjects like 1) mother tongue or regional language, 2) English or Hindi, 3) a modern Indian or European language, 4) social studies, General Science and Mathematics and 5) one of the Crafts like Workshop practice, metal work, tailoring, printing technology etc., for all the diversified courses.

7. Technical Institutions

As regards the technical institutions these are designated as trade schools, industrial schools, occupational institutes, junior technical schools, technical high schools, multipurpose schools (with the technical stream), industrial training institutes, industrial training centres, vocational training centres and vocational high schools. Beyond these are the Polytechnics which cater for postmatriculation diploma courses in technical subjects and the Professional Colleges catering for degree courses in Engineering and Technology, both of which are generally of 3 years. There are however a few Universities and Higher Technological Institutes catering for engineering degree courses of 4 years.

The technical courses that are available range from courses that can be taken by those who are literates. The trade courses in Mechanical and Electrical Engineering and other subjects like fitters, turners, blacksmiths, electricians etc. can be taken in industrial or trade schools generally after the age of 14 and after having taken school education upto the VII standard pass. These are 2 year courses

generally. Certain certificate courses in technical subjects can be taken after the X standard.

In some states at the high school stage concurrently with instruction in academic subjects, training is also imparted in technical subjects i.e. there is a technical bias. These schools are called Technical High Schools. Some of the technical High Schools cater only for matriculation or Secondary School Certificate Examination with certain technical subjects and do not train for purely academic subjects. The Technical High School or Multi-Purpose School thus caters for students passing the VII standard. This school is like the secondary school, but in addition to training in subjects like languages, science, mathematics and social studies, training is given in applied mathematics and geometrical and machine drawing, elementary workshop technology and elements of mechanical and electrical engineering. The object being to give training in the use of tools, materials and processes. These schools do not turn out skilled artisans. In some schools which are known as multi-purpose schools there are various streams of instruction. The diversion starts in the VIII standard and the stream runs through VIII, IX, X and XI standards which is the school leaving stage.

The streams are: -

(1) academic, (2) science, (3) technical, (4) commercial, (5) agriculture, (6) fine art, and (7) domestic or home science.

The Vocational High Schools cater for post-VII standard courses, leading to the final certificate examination, where greater emphasis is laid on workshop training than in a technical high school, though training is also given in subjects like languages, social studies, science, mathematics and technical drawing.

The Junior technical high school caters for post-VIII standard courses and is like the Vocational High School, turning out skilled artisans.

The industrial training institutes or centres and Vocational Training Centres under the Craftsman Training Schemes cater for post-IX standard courses, some being post-matriculation courses.

As already stated before, after this come the Polytechnics catering for post-matriculation diploma courses, and the engineering colleges catering for post-Intermediate in science degree courses in Engineering and Technology.

The relative position of secondary schools to technical and vocational schools as estimated in 1955-56 may be noted below as a matter of broad comparison:-

Secondary Schools (including middle, high and Higher Secondary)

<u>No. of Schools</u>	<u>No. of Pupils</u>
32,568	85,26,000
<u>Technical Vocational Schools</u>	
3,074	2,80,000

The difference between the academic and technical studies is due to the comparative cost involved in setting up a technical school. It has been estimated by the Education Division of the Planning Commission of India that in 1953-54 the average cost per pupil in a technical and vocational school was Rs.194.1 as against Rs.66.1 in a Secondary School.

8. Higher Engineering and Technical Education

A significant development prior to the Independence of India was the setting up of the Council of Scientific and Industrial Research which in turn has set up a chain of 14 National Laboratories, opening facilities to scientists, universities, industries and others to carry out investigations. They play a very significant role in disseminating scientific knowledge in various branches of national activities. They cover the following fields: - Physics, Chemistry, Roads, Buildings, Food Technology, Drugs, Leather, Electro-Chemical, Fuels, Glass and Ceramics, Salt, Electronics, Metallurgy, and Botany.

At the time of the Independence of India a lot of ground had been covered by way of assessing the requirements etc. by standing committees like the All India Council of Technical

Education and various committees and sub-committees appointed by the Government of India from time to time. The All India Council of Technical Education with its 4 Regional Committees and 7 Board of studies and its Coordinating Committee has surveyed the facilities in the regions and taken valuable decisions for expansion at the under-graduate, post-graduate and research level. The All India Council of Technical Education has been performing the role of co-ordination and standardisation. It has implemented development plans progressively and considerable headway has already been made.

The Higher Institutes of Technology at Kharagpur (East) and Bombay (West) have already come up and those at Madras (South) and Kanpur (North) are on their way. In the establishment of these Institutes for undergraduate and post-graduate work in Engineering and Technology, we are witnessing the propsering example of International Technical Co-operation.

Government of India have also forged ahead on the recommendations of expert committees with the implementation of schemes for provision of practical training, stipends for degree and diploma holders in engineering and technology, the provision of research training scholarships in the universities and institutes of higher learning, and the improvement of post-graduate facilities. Government of India have also stepped in to improve and strengthen several selected non-Government technical institutions throughout India, by giving loans for construction of hostels for students, for improvement of salary scales of teachers and the introduction of several new courses.

One important facet of the post-independence period was the increasing association of industry with the growth and development of technical education which has taken considerable strides in this period.

The First Five Year Plan of the country had commenced in 1951 for the period ending 1955-56 and the Second commenced in 1956-57. This will be for the period ending 1960-61. The Third Five Year Plan is projected for the period 1961-1962 to 1965-1966.

The First Five Year Plan provided for the consolidation of the development programme already taken up and the continuance of schemes already started on the advice of expert

bodies of the Government of India. More post-graduate courses have since been instituted in the II Five Year Plan. Schools for management studies and regional schools of printing technology also received good support at the hands of the Central Government.

It would be interesting to note that the total outlay on Technical Education in the 1st Five Year Plan was about Rs.2,30,000,000, whereas that in the II Plan is about Rs.4,87,000,000.

In 1955, the Planning Commission appointed a committee known as the Engineering Personnel Committee to assess the requirements of engineering personnel of the supervisory and higher categories, with an eye on the Second Plan requirements of the personnel in the important fields of national activities. This committee took stock of the II Five Year Plan Schemes of development of the various states of India and reported that 18 more engineering degree colleges and 62 polytechnics for diploma courses would be required to be established, so as to yield 2794 additional seats for degree and 8221 additional seats for Diploma by the end of the Second Plan i.e. 1960-61. This was proposed to be achieved in 2 ways, by starting new Institutes and increasing the capacity of the existing institutions by 20 + 25%.

The position at a glance in the field of engineering education, would be as under: -

	Admission in 1947 (pre- independence)	Total Admissions in 1956 (Approximate)	Additional seats to be provided during 1956-61 i.e. Second Plan period
1.	2.	3.	4.
Degree	2520	5150	1250
Diploma	3150	9000	2000

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Further Additional seats proposed to be provided by 1960-61 according to the Engineering Personnel Committee (approximately)

	5.	6.
Degree	2794	9194
Diploma	8221	19221

If the figures for Engineering and Technology are taken, the picture as it would emerge in 1960-61, would be as under:-

Total population of India	Degree courses Total intake	Diploma courses Total intake
387.35 (Millions)	12915	24547
National index (i.e. seats to every 1,000,000 of population).	33.37	63.37
Percentage increase over 1956	94.74	139.67

As regards the out-turn of Engineering graduates and diploma holders the position is as follows:-

	1947	1951	1958
Graduates	950 approx-imate.	2150 approx-imate.	3400 approx-imate.
Diploma holders	1150 "	2250 "	4100 "

As regards Engineering and Technology together, the position is as follows:-

	1947	1951	1957
Graduates	1270 approx-imate.	2700 approx-imate.	4300 approx-imate.
Diploma holders	1440 "	2600 "	5000 "

9. Vocational and Technical Education at the Craftsman level.

Craftsman training in India did not receive proper attention until recently. In the pre-war period this type of training was due only to the efforts of private entrepreneurs and institutions. The urgent need for craftsman training loomed large during the second world war, when Government of India introduced the Technical Training Scheme in 1940 on all All-India basis. By 1942, about 380 Training Centres with a provision for 60,000 trainees per year were set up. This scheme continued till 1946 when as a result of the close of war the training facilities were employed for the benefit of ex-servicemen. At that time about 100 training centres were functioning to train about 12,000 persons. Subsequently, the training facilities were utilised for the persons displaced as a result of the partition of India to fit them for suitable occupations.

In 1944, Government of India set up a committee to advise regarding measures to meet the peace-time requirements. The developing industries needed a steady supply of skilled personnel and therefore this Committee suggested a scheme for Craftsman Training.

In 1950, an Adult Civilian Training Scheme was instituted by Government of India in collaboration with the state governments, with a view to ensuring a steady flow of skilled workers, raising the quality and quantity of production by systematic training of workers, and reducing unemployment among the educated youth. Accordingly technical training in engineering and building trades and vocational training in cottage and small-scale industries was provided.

Thereafter, in 1952 Government of India appointed another committee known as the Shiva Rao Committee which dwelt on the importance of training of craftsmen to raise the level of industrial production, as an important adjunct to capital and machinery as factors of production, and recommended the integration of the training facilities provided by the Central Government with those in the States, with the centre co-ordinating the overall training programmes.

The Second Five Year Plan which was aimed at substantially raising the economic and social standards of the Indian people,

and rapid industrialization, with particular emphasis on the development of basic and heavy industries, again indicated the urgent need for trained craftsmen.

Before the Second World War there were 60 training institutes and centres catering for training in 29 technical trades and 17 vocational trades, with provision for the training of 8662 trainees in technical and 1872 in vocational trades under the Craftsman Training Scheme. Thus from 10,5000 seats at the end of the First Plan period i.e. 1956 the seats are proposed to be raised to 40,000 by the end of the Second Plan period i.e. 1961. In the Second Plan accordingly about Rs.17 crores have been allotted for the development of craftsmen training facilities. These training facilities are provided mostly in special institutions set up for the purpose and partly in centres attached to existing technical institutions.

Government of India have in this connection set up a National Council for Training in Vocational Trades to advise Government on the training of craftsmen, laying down standards, and awarding certificates.

In addition to this, the Railways etc. have their own training programmes, and unorganized training arrangements are also providing craftsmen required by industry. A recent survey has assessed the requirements of different grades of skilled craftsmen of the large, medium and small-scale industrial sectors at about 6,35,000, during the Second Plan period.

10. Relation between Apprenticeship and Vocational and Technical Education

As regards apprenticeship, the traditional method of training craftsmen, it will be seen that the aim of technical and vocational education in relation to industry would be to make available to industry better qualified personnel. A sample survey recently attempted to collect information in this connection, has revealed that apprenticeship training could be said to exist to the extent of training about 60,000 apprentices during the second plan period. This is, of course, very inadequate if the increasing targets of production for industrialization of the country have to be achieved in the minimum possible time. The necessity of training more

craftsmen is, therefore, paramount. There were a variety of reasons for the very limited progress made in this field till the Second Plan came in. With a view to tackling this situation the following schemes have been planned:-

- (1) Development of training facilities in the Industrial Training Institutes,
- (2) The National Apprentices Scheme,
- (3) Evening classes for industrial workers,
- (4) Training of Craft Instructors,
- (5) Work-cum-orientation centres for educated unemployed.

As regards the first, as stated earlier 40,000 trainees are proposed to be trained yearly by 1961.

Under the National Apprenticeship Scheme provision has been made for securing apprenticeship for 7,050 persons in industry, though the progress in this field has been slow.

As regards the Evening Classes, it is intended to improve the theoretical knowledge of industrial workers. Accordingly, it is proposed to train 3,050 such persons under this scheme.

Provision is also made for the training of Craft Instructors at institutions specially set up for the purpose.

Under the scheme for Work and Orientation Centres, the educated unemployed will be assisted in seeking further avenues of employment by increasing their self-employability as small entrepreneurs. On completion of their training they would be rendered assistance by Government. It is estimated that about 3,000 persons will be afforded these facilities by 1961.

It will thus be observed that much progress has been made in recent years in the field of Vocational and Technical Education in India. But in the context of present day advances in science and technology in the world, considerable has yet to be done.

11. Statistics

(A) Total Population

The total population of India according to the Census of India taken in 1951 is 387.35 million (387,350,000). The population of the States of India, as they are constituted today after reorganisation is shown in Appendix "A" hereto.

(B) Number of Pupils

- (1) The number of pupils receiving primary education, secondary education and Vocational and Technical Education, is shown in Appendix "B".
- (2) The number of pupils receiving education in different classes (grades) from the pre-primary to the secondary by age groups is shown in Appendix "C". It will be seen that (i) Classes I to IV represent Primary Education (ii) Classes V to VII represent the Middle or Lower stage of Secondary school (iii) Classes VIII to XI represent the higher stage of the secondary school.
- (3) Number of pupils receiving professional and special education (Engineering and Technology) - school education by age groups is shown in Appendix "D".
- (4) Number of pupils receiving professional and special education (Engineering and Technology) - Collegiate education - by age groups is shown in Appendix "E".

(C) Number of schools

- (1) Number of schools for general education and Vocational and Technical Education by types is shown in Appendix "F".
- (2) Statistics of Vocational and Technical Schools by States of India, showing also the expenditure incurred, and its break-up of sources, are shown in Appendix "G".

(D) Expenditure Figures

- (1) Expenditure incurred on Education in India according to Heads of Charges is shown in Appendix "H".
- (2) Expenditure incurred on Education in India by Sources is shown in Appendix "I".
- (3) Expenditure Per Capita of Population on Education as a whole, by States of India, is shown in Appendix "J".
- (4) The average annual cost per pupil in Primary and Secondary schools by States is shown in Appendix "K".

(E) The Budget figures of the States of India (and Government of India separately) and their Budget figures for Education and the percentage of the latter to the former are shown in Appendix "L".

(F) Types of courses offered for Diploma and Certificate courses in Engineering and Technology and those under the Craftsman Training Scheme are shown in Appendix "M".

(G) Miscellaneous Tables:-

- (1) Education in India - Institutions, Students and Expenditure - Appendix "N".
- (2) Statement showing the relative position of Expenditure on Technical Education and General Education in the period 1951-52 to 1960-61 on the Schemes included in the Five Year Plans. - Appendix "O".
- (3) Percentage of children in primary and secondary stages to those of school going age - Appendix "P".
- (4) Description of Advisory Councils, Commissions and Committees - Appendix "Q".

Appendix I

Population Figures

<u>State</u>	<u>in thousands</u>
Andhra	3,35,20
Assam	99,20
Bihar	4,08,60
Bombay	5,29,60
Jammu & Kashmir	46,30
Kerala	1,51,10
Madhya Pradesh	2,72,50
Madras	3,22,50
Mysore	2,13,20
Orissá	1,51,20
Punjab	1,69,30
Rajasthan	1,72,20
Uttar Pradesh	6,70,80
West Bengal	2,81,00
A. & N. Islands	30
Delhi	20,50
H. Pradesh	11,40
L, M. & A. Islands	20
Manipur	6,20
Tripura	7,20
N. E. F. A.	Not available
Pondicherry	Not available
TOTAL	<u>3,87,350</u>

Number of Pupils in Recognised Institutions by Stages of Instruction

Appendix II

Stage	Boys			Girls			Total
	1954-55	1955-56	1954-55	1955-56	1954-55	1955-56	
	1	2	3	4	5	6	7
General Education							
Pre-Primary	35,480	44,864	24,854	30,631	60,294	75,495	
Primary	1,58,81,641	1,70,24,645	67,40,376	74,86,686	2,26,22,077	2,45,11,531	
Secondary	51,70,315	54,86,534	11,97,700	15,40,071	65,68,010	68,26,605	
Intermediate	3,22,913	3,41,559	47,681	54,959	3,70,594	3,96,448	
B.A./B.Sc.	1,13,398	1,26,130	20,502	24,772	1,33,900	1,50,902	
M.A./M.Sc.	18,989	21,293	3,572	4,040	22,561	25,553	
Research	2,164	2,193	354	371	2,518	2,564	
Total :	2,15,44,875	2,30,47,198	80,35,019	89,41,480	2,95,79,894	3,19,88,678	
Professional & Technical Education (Collegiate)							
Special Education (Collegiate)	7,456	8,589	3,154	3,294	10,590	11,883	
Vocational & Tech. Education (School)							
Social (Adult) Education	1,83,498	2, 2,14,079	61,843	66,047	2,47,341	2,80,120	
Social Education (Schools)	9,95,763	11,42,926	1,15,642	1,35,901	11,11,405	12,78,827	
GRAND TOTAL:	2,30,59,117	2,47,34,686	82,46,303	91,88,707	3,12,67,420	3,39,25,593	

(Source: "Education in India", 1955-56, Report, Vol. I)

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Distribution of Pupils Receiving
General Education by Classes and
Age-Grounds, 1955-56

		S c h o o l E d u c a t i o n					
		Number of Pupils in Classes					
Age-Group	Pre- Primary	I	II	III	IV	V	
1	2	3	4	5	6	7	
Below (Boys	25,111	46,997	203	5	...	...
5 (Girls	17,864	26,973	155	...	...	...
5--6 (Boys	11,473	13,222	8,927	4,033	212	10	
(Girls	8,088	6,946	4,089	951	92	6	
6--7 (Boys	5,636	21,122	6,676	9,395	7,035	1,602	
(Girls	3,320	10,318	3,253	3,791	3,405	639	
7--8 (Boys	1,476	15,123	10,625	4,240	9,238	15,295	
(Girls	806	7,438	4,823	2,038	3,714	6,549	
8--9 (Boys	585	8,674	8,522	7,392	3,402	8,433	
(Girls	297	4,263	3,923	3,198	1,523	3,119	
9--10 (Boys	312	4,363	5,640	6,479	5,532	2,689	
(Girls	138	2,068	2,388	2,714	2,253	1,123	
10--11 (Boys	99	2,008	3,034	4,578	5,253	4,298	
(Girls	60	1,050	1,209	1,769	1,978	1,465	
11--12 (Boys	81	9,023	14,749	25,595	3,920	3,997	
(Girls	37	4,284	6,088	9,489	1,368	1,241	
12--13 (Boys	74	40,855	72,047	134,641	2,177	2,973	
(Girls	17	13,884	26,065	37,269	7,058	8,485	
13--14 (Boys	10	17,773	40,862	69,167	1,222	1,715	
(Girls	3	4,471	8,848	21,990	3,265	4,511	
14--15 (Boys	6	7,713	17,636	34,323	55,624	87,245	
(Girls	1	1,117	2,898	10,096	12,554	19,729	
15--16 (Boys	1	3,038	5,490	11,801	25,300	40,951	
(Girls	...	554	989	2,017	4,172	7,864	

Appendix III

School Education							
Number of Pupils in Classes							
VI	VII	VIII	IX	X	XI	XII	Total
8	9	10	11	12	13	14	15
...	...	...	...	...	...	...	72,316
...	...	...	...	...	...	...	44,992
22	...	...	...	...	...	...	14,24886
1	...	...	...	...	...	...	7,44,042
294	2	...	...	...	...	...	288,8491
84	7	1	...	...	...	...	14,02,571
4,089	668	36	...	...	...	...	31,12874
1,781	280	25	1	...	...	...	14,76,561
22,255	4,386	1,025	44	1	...	...	22,1,1940
7,199	1,442	375	11	...	...	...	13,31,495
8,69,09	25,558	5,251	361	96	...	...	25,82,124
25,959	6,867	1,243	122	5	...	...	10,85,255
2,01,317	8,04,22	2,9,080	3,5,23	451	156	...	22,32,350
7,1,208	23,547	7,158	773	117	12	...	8,50,141
29,3,239	1,67,085	7,9,008	1,9,016	4,612	1,417	2	18,49,880
8,9,059	5,9,692	1,9,345	3,075	801	111	2	6,31,681
2,75,619	2,44,414	1,55,081	5,24,45	1,67,54	2,738	31	15,09,706
70,307	70,239	4,63,44	1,06,59	2,666	306	4	4,42,670
2,05,838	2,28,501	2,07,929	1,24,241	4,68,75	8,322	253	12,43,567
48,773	53,678	55,983	3,25,48	10,302	1,411	49	3,15,827
1,22,730	1,77,623	1,84,919	1,59,379	1,01,269	25,485	2,215	9,76,167
25,788	35,163	40,895	38,162	25,918	5,656	491	2,18,468
6,78,97	1,07,949	1,29,328	1,38,169	1,28,320	52,582	4,195	7,15,021
1,26,55	2,04,07	25,335	27,673	30,232	15,693	807	1,48,398

Distribution of Pupils Receiving General
Education by Classes and Age-Grounds,
1955 - 56

		S c h o o l E d u c a t i o n					
		Number of Pupils in Classes					
		Pre- Primary	I	II	III	IV	V
1	2	3	4	5	6	7	
16--17	(Boys ... (Girls ...)	681 55	1,785 301	3,885 654	8,792 1,346	16,305 2,258	
17--18	(Boys ... (Girls ...)	782 28	413 38	1,245 89	2,744 292	5,590 578	
18--19	(Boys ... (Girls ...)	48 10	139 10	395 21	838 81	2,028 174	
19--20	(Boys ... (Girls ...)	39 9	42 4	112 11	302 37	767 77	
20--21	(Boys ... (Girls ...)	20 5	15 3	26 4	59 11	354 130	
21--22	(Boys ... (Girls ...)	10 ...	11 3	11 2	13 7	111 10	
22--23	(Boys ... (Girls ...)	11 ...	3 3	3 1	8 2	35 9	
23--24	(Boys ... (Girls ...)	4 ...	5 1	3 2	1 3	18 7	
24--25	(Boys ... (Girls ...)	10 1	... ...	8 2	1 6	7 6	
Over 25	(Boys ... (Girls ...)	18 1	5 4	4 11	4 14	14 13	
TOTAL	(Boys (Girls	44,864 30,631	66,596 37,468	38,231 20,520	28,787 18,086	234,420 151,052	1,822,058 581,032

Appendix III (Continued)

School Education							
Number of pupils in classes							
VI	VII	VIII	IX	X	XI	XII	Total
8	9	10	11	12	13	14	15
35,068	60,339	78,349	95,018	1,08,184	58,755	4,659	4,71,820
5,090	9,846	13,243	16,410	18,199	15,952	576	83,930
14,215	29,617	39,344	57,189	74,306	52,194	3,695	2,81,331
1,867	3,657	5,824	8,376	10,216	11,391	271	42,627
4,525	12,789	19,951	30,976	47,438	34,165	1,975	1,55,267
487	1,317	2,724	3,985	5,558	7,319	111	21,797
1,491	6,887	7,040	10,935	21,116	20,363	622	69,716
227	609	803	1,463	3,144	3,117	31	25,32
1,262	1,694	2,530	4,084	10,005	11,533	209	31,791
64	270	208	800	1,393	1,581	5	4,374
92	475	971	1,489	3,930	5,314	28	12,455
23	62	79	258	629	608	...	1,681
28	87	255	519	1,290	1,817	3	4,059
9	25	36	57	207	286	...	635
22	28	124	171	443	877	...	1,697
9	15	18	41	49	170	1	315
11	16	63	82	230	350	...	778
12	12	20	22	37	53	...	171
10	18	79	103	188	364	...	807
13	24	19	26	29	70	1	228
13,36,933	11,48,558	9,40,360	14,44,662	5,65,508	2,76,432	17,888	2,25,56,043
3,60,615	2,87,159	2,19,678	1,44,462	1,09,502	63,736	2,348	88,57,388

(Source: "Education in India", 1955-56, Report Vol. II)

Appendix IV

Distribution of Pupils Receiving Professional and
Special Education by Age-Groups(1955-56)

Age-Group 1	School Education	
	Engineering and Technology	
	Boys 2	Girls 3
Below 10	457	91
10-11	414	263
11-12	527	373
12-13	913	366
13-14	1,193	583
14-15	1,958	695
15-16	3,366	867
16-17	4,683	1,127
17-18	7,280	1,152
18-19	8,634	1,165
19-20	7,993	937
20-21	6,912	825
21-22	5,187	590
22-23	3,902	540
23-24	2,857	496
24-25	2,025	424
25-26	1,802	430
26-27	607	207
27-28	296	177
28-29	219	136
29-30	199	88
30-31	128	98
31-32	96	81
32-33	52	70
33-34	31	31
34-35	17	25
Over 35	70 (b)	51 (b)
Total:	61,807	11,888

(b) Includes 27,492 boys and 20 girls in engineering, 20,773 boys and 11,674 girls in Industry, 13,542 boys and 194 girls in Technology and excludes 147 boys in technology whose age-wise distribution is not available.

(Source: "Education in India", 1955-56, Report Vol.II)

Appendix V

Distribution of Pupils Receiving Professional and
Special Education by Age-Groups
1955-56

Age- Group	Collegiate Education	
	Engineering and Technology	
	Boys	Girls
1	2	3
Below 10	.....	.....
10-11	.....	.....
11-12	.....	.....
12-13	.....	.....
13-14	.....	.....
14-15	1	.....
15-16	108	.....
16-17	408	1
17-18	1,344	4
18-19	2,340	7
19-20	3,126	4
20-21	3,589	4
21-22	3,008	9
22-23	2,289	4
23-24	1,459	1
24-25	898	.....
25-26	558	2
26-27	329	2
27-28	152	.....
28-29	102	.....
29-30	57	.....
30-31	15	.....
31-32	10	.....
32-33	7	.....
33-34	8	.....
34-35	8	.....
Over 35	4	.....
Total:	19,820 (a)	38 (a)

(a) Includes 16,665 boys and 8 girls in engineering, 294 boys and 4 girls in architecture and 2,861 boys and 26 girls in technology.

(Source: "Education in India", 1955-56, Report Vol. II)

Number of Institutions by Type

Appendix V

Type	For Boys			For Girls			Total	
	1954-55	1955-56	1954-55	1955-56	1954-55	1955-56		
1	2	3	4	5	6	7		
<u>Recognised</u>								
Schools for General Education								
High/Highest Secondary	8,699	9,255	1,501	1,583	10,200	40,838		
Middle	15,417	19,393	1,901	2,337	17,318	21,730		
Primary	2,48,701	2,62,905	14,925	15,230	2,65,626	2,78,135		
Pre-Primary	351	419	162	211	515	650		
Total :	2,73,168	2,91,972	18,489	19,361	2,91,657	3,11,553		
School for Vocational and Technical Education								
Agriculture	43	76	1	1	44	77		
Arts and Crafts	151	162	231	229	382	391		
Commerce	824	895	6	5	830	898		
Engineering	42	61	...	...	42	61		
Forestry	3	3	...	...	3	3		
Marine Training	3	3	...	...	3	3		
Physical Education	14	17	...	...	14	17		
Medicine and Veterinary	20	28	57	56	77	84		
Teachers' Training	622	678	238	252	860	930		
Technical & Industrial	369	463	127	146	496	609		
Others	1	1	...	...	1	1		
Total :	2,092	2,385	660	689	2,752	3,074		

(Source: "Education in India", 1955-56, Report Vol. I)

The following table shows the results of the analysis of variance for the effect of the treatment on the yield of the crop. The data are presented in the following table:

Treatment	Yield (kg/ha)
T1	1200
T2	1350
T3	1450
T4	1550
T5	1650
T6	1750
T7	1850
T8	1950
T9	2050
T10	2150
T11	2250
T12	2350
T13	2450
T14	2550
T15	2650
T16	2750
T17	2850
T18	2950
T19	3050
T20	3150
T21	3250
T22	3350
T23	3450
T24	3550
T25	3650
T26	3750
T27	3850
T28	3950
T29	4050
T30	4150
T31	4250
T32	4350
T33	4450
T34	4550
T35	4650
T36	4750
T37	4850
T38	4950
T39	5050
T40	5150
T41	5250
T42	5350
T43	5450
T44	5550
T45	5650
T46	5750
T47	5850
T48	5950
T49	6050
T50	6150
T51	6250
T52	6350
T53	6450
T54	6550
T55	6650
T56	6750
T57	6850
T58	6950
T59	7050
T60	7150
T61	7250
T62	7350
T63	7450
T64	7550
T65	7650
T66	7750
T67	7850
T68	7950
T69	8050
T70	8150
T71	8250
T72	8350
T73	8450
T74	8550
T75	8650
T76	8750
T77	8850
T78	8950
T79	9050
T80	9150
T81	9250
T82	9350
T83	9450
T84	9550
T85	9650
T86	9750
T87	9850
T88	9950
T89	10050
T90	10150
T91	10250
T92	10350
T93	10450
T94	10550
T95	10650
T96	10750
T97	10850
T98	10950
T99	11050
T100	11150

The results show that the yield of the crop increases significantly with the treatment number. The increase is linear, with a constant slope of 10 kg/ha per treatment. The yield starts at 1200 kg/ha for treatment T1 and reaches 11150 kg/ha for treatment T100.

Statistics of Vocational and Technical
Schools by States

State	No. of Institutions @		*Number of Pupils				Expenditure	
			Boys		Girls			
	1954-55	1955-56	1954-55	1955-56	1954-55	1955-56	1954-55	1955-56
1	2	3	4	5	6	7	8	9
Andhra	198	214	15,199	16,846	3,543	3,124	19,955.69	22,664.84
Assam	61	76	4,287	5,261	526	575	16,322.20	21,406.24
Bihar	152	176	9,490	14,212	1,081	1,252	26,277.42	39,851.20
Bombay	615	715	33,312	39,599	17,990	19,843	86,238.63	99,107.95
Madhya Pradesh	62	61	6,411	7,888	1,052	1,259	24,438.07	27,029.08
Madras	540	584	36,537	39,130	11,408	11,812	44,167.20	50,712.85
Orissa	68	76	2,886	3,652	495	359	10,387.84	9,508.20
Punjab	53	61	5,478	8,373	2,061	3,196	20,103.02	23,659.42
Uttar Pradesh	174	186	11,511	13,376	2,697	2,741	54,875.95	59,779.17
West Bengal	269	279	23,111	23,441	8,466	7,851	55,730.60	64,371.40
Hyderabad	35	41	4,004	4,080	457	280	21,766.37	23,361.40
Jammu & Kashmir	...	7	156	1,000	88	263	...	15,000.00
Madhya Bharat	39	70	1,423	2,379	419	449	5,130.17	9,106.64
Mysore	112	120	12,608	14,780	1,648	1,698	21,199.67	24,449.43
Pepsu	7	11	1,384	1,404	209	266	3,068.91	4,208.00
Rajasthan	16	17	2,162	1,542	131	142	69,492.4	7,120.86
Saurashtra	16	20	2,039	2,044	473	532	16,094.72	18,158.01
Travencore-Cochin	295	305	10,367	10,904	8,312	9,286	12,230.74	15,755.41
Ajmer	2	2	260	271	25	20	1,452.28	1,616.88
Bhopal	5	15	356	830	20	124	2,409.01	5,448.05
Coorg	4	4	109	153	42	30	462.79	721.70

Appendix VII

S t a t e	Percentage of Expenditure (1955-56) met from				
	Govt. Funds	Local Board Funds	Fees	Endow- ment	Other Sources
	10	11	12	13	14
Andhra	67.0	0.9	12.3	14.6	5.2
Assam	89.2	0.2	6.6	1.0	3.0
Biher	92.5	0.8	2.6	0.1	4.0
Bombay	58.5	2.7	21.1	1.5	16.2
Madhya Pradesh	89.6	0.1	7.1	0.8	2.4
Madras	56.3	0.6	20.9	15.5	6.7
Orissa	87.5	...	6.2	1.6	4.7
Punjab	70.1	0.6	16.9	1.9	10.5
Uttar Pradesh	76.3	2.0	17.0	0.5	4.2
West Bengal...	65.6	1.1	21.6	2.8	8.9
Hyderabad ...	90.1	...	4.3	2.1	3.5
Jammu & Kashmir	100.0	...	...	...	...
Madhya Bharat	95.2	0.1	2.0	1.3	1.4
Mysore	81.1	...	15.5	0.2	3.2
Pepsu	75.7	...	24.3	...	...
Rajasthan	98.7	...	0.7	...	0.6
Saurashtra ...	77.7	...	4.4	8.5	9.4
Travancore-					
Cochin	62.7	...	30.9	...	6.4
Ajmer	100.0	...	...	...	...
Bhopal	99.5	...	0.5	...	...
Coorg	100.0	...	...	...	...

Statistics of Vocational and Technical
Schools by States

State	No. of institutions@		*Number of Pupils									Expenditure	
	1954-55	1955-56	Boys			Girls			1954-55	1955-56	1954-55	1955-56	
			1954-55	1955-56	1954-55	1955-56							
I	2	3	4	5	6	7	8	9					
Delhi	9	10	1,224	1,454	527	603	6,46,591	8,29,446					
Himachal Pradesh	4	3	341	312	77	40	1,08,059	1,28,544					
Kutch	3	3	63	139	8	10	71,727	1,14,605					
Manipur	3	4	277	213	67	51	15,051	21,338					
N.E.F.A.	1	2	25	106	...	....	33,408	87,971				
Tripura	2	4	42	120	15	220	38,326	59,555					
Vindhya Pradesh	7	8	436	570	6	15	3,24,610	3,13,014					
INDIA	2,752	3,074	1,85,498	2,14,079	61,843	66,041	4,60,63,824	5,45,08,146					

@ Excludes classes attached to schools for general education

* Includes enrolment in attached classes

(Source: "Education in India", 1955-56 - Report Vol.I)

Appendix VII (Continued)

State	Percentage of Expenditure (1955-56) met from				
	Govt. Funds	Local Board Funds	Fees	Endow- ment	Other Sources
	10	11	12	13	14
Delhi	93.3	0.6	4.7	0.1	1.3
Himachal Pradesh	100.0	...	...	...	...
Kutch	88.0	...	3.6	...	8.4
Manipur	83.2	...	...	2.8	14.0
N.E.F.A	100.0	...	...	...	...
Tripura	84.5	...	...	...	15.5
Vindhya Pradesh	94.9	...	0.9	...	4.2
INDIA	73.8	1.1	14.6	3.3	7.2

Appendix III

Expenditure on Education According to
Heads of Charges

Head of Charge	1954-55	1955-56
1	2	3
	Rs.	Rs.
Direct:		
Universities	7,41,71,561	7,98,04,600
Boards of Secondary and/or Intermediate Education	1,22,71,321	1,32,40,136
Research Institutions	1,30,28,113	1,39,04,324
Arts and Science Colleges	10,56,46,983	11,64,74,022
Professional Colleges	6,31,04,380	7,00,08,191
Special Education Colleges	33,96,831	36,34,551
High School	34,06,13,042	37,61,44,383
Middle Schools	11,45,85,286	15,40,50,236
Primary Schools	50,89,27,789	53,72,72,066
Pre-primary Schools	19,88,512	24,99,241
Vocational & Tech. Schools	4,60,63,824	5,45,08,146
Social Education Schools	54,84,912	71,96,186
Special Education Schools	1,77,99,301	1,93,32,703
TOTAL:-	1,30,70,81,855	1,44,80,68,785
Indirect:		
Direction	82,41,492	95,89,402
Inspection	2,71,72,015	3,04,16,303
Buildings	13,79,10,227	19,63,57,744
Scholarships	6,79,29,553	8,21,72,174
Hostel Charges	2,37,48,701	2,66,10,340
Miscellaneous	7,80,45,789	10,33,95,643
TOTAL:-	34,30,47,777	44,85,41,606
GRAND TOTAL:-	1,65,01,29,632	1,89,66,10,391

(Source : " Education in India ", 1955-56, Report Vol. I).

Appendix IV

Expenditure on Education by Sources

Source	1954 - 55		1955 - 56	
	Amount	Percentage	Amount	Percentage
	2	3	4	5
	Rs.			
Government Funds ...	98,85,24,032	59.9	1,17,20,49,567	61.8
Distt. Board Funds ...	9,05,24,758	5.5	9,89,97,699	5.2
Municipal Board Funds	6,03,87,363	3.7	6,45,50,300	3.4
Fees ..	35,33,62,023	21.4	37,90,32,605	20.0
Endowments ..	4,96,20,088	3.0	5,69,24,390	3.0
Other Sources ..	10,77,12,368	6.5	12,50,55,830	6.6
TOTAL:-	1,65,01,29,632	100.0	1,89,66,10,391	100.0

(Source: "Education in India", 1955-56, Report Vol.I).

Appendix X

Expenditure per Capita on Education
by States
1955-56

State	Expenditure per Capita of population
	Rs.
Andhra	4.4
Assam	4.3
Bihar	2.9
Bombay	8.0
M. Pradesh	4.3
Madras	5.4
Orissa	2.7
Punjab	6.7
U. Pradesh	3.8
U. Bengal	7.8
Hyderabad	3.2
J. & Kashmir	2.0
M. Bharat	3.8
Mysore	5.0
Pepsu	5.6
Rajasthan	2.5
Saurashtra	5.9
Trav. Cochin	6.9
Ajmer	13.5
A. & N. Island	9.3
Bhopal	11.0
Coorg	10.9
Delhi	25.5
H. Pradesh	4.8
Kutch	3.5
Manipur	3.7
N.E.F.A.	*
Pondichery	...
Tripura	9.8
V. Pradesh	3.5
INDIA	4.9

* Population figures for N.E.F.A. are not available.

(Source: "Education in India", 1955-56, Report Vol.I).

Some Statistics
1955-56

State.	Average annual cost per pupil in	
	Primary schools. 1. Rs.	Secondary schools. 2. Rs.
Andhra	24.3	71.8
Assam	13.9	53.7
Bihar	14.6	49.8
Bombay	30.1	60.8
Jammu & Kashmir	22.5	42.9
Kerala	13.5	39.4
Madhya Pradesh	27.6	59.2
Madras	25.8	69.0
Mysore	24.7	51.9
Orissa	17.3	65.8
Punjab	29.5	52.0
Rajasthan	33.0	68.7
Uttar Pradesh	19.5	77.7
West Bengal	22.3	76.4
A. and N. Islands	52.5	90.3
Delhi	79.2	92.4
Himachal Pradesh	44.7	61.3
Laccadive, Minicoy & Admindive Islands,	30.0	..
Manipur	15.1	42.3
N.E.F.A.	91.7	219.1
Tripura	45.5	66.3
India	23.4	62.2

(Source: "Education in the Reorganised States," 1955-56).

Appendix XII

Budget figures (Estimates) by States.
(In lakhs of Rs.)
(1 lakh = 1,00,000).

State	Total Budget (Revenue) 1958-59	Education Budget.	% age of column 3 to column 2.
1	2	3	4
Andhra Pradesh	6,479	1,169	18
Assam	2,970	503	16
Bihar	6,296	945	15
Bombay	13,158	2,483	18
Jammu & Kashmir	942	136	14
Kerala	3,581	1,247	34
Madhya Pradesh	5,527	1,063	19
Madras	6,684	1,232	18
Mysore	6,388	1,032	16
Orissa	2,637	332	12
Punjab	4,651	1,017	21
Rajasthan	3,575	700	19
Uttar Pradesh	11,068	1,574	14
West Bengal	8,077	1,274	15
Delhi	968	227	23
Himachal Pradesh	464	26	6
Manipur	195	16	8
Tripura	329	43	13
And. & Nicobar Islands	268	7	2
Pondicherry	264	19	7
Laccadive, Minicoy & Amindive Islands	Not available.	Not available.	Not available.
Government of India	106,628	3,064	3
Total:	191,149	18,109	9

(N.B:- The figures for State Government Budget indicate provision made by the States' Education Departments and is in many cases exclusive of provision for education included in certain other Departments of the State Government e.g. Health, Industries etc.)

(Source for State Budget-"India
1959 - A Reference Annual).

TYPES OF COURSES OFFERED FOR DIPLOMA & CERTIFICATE COURSES IN ENGINEERING & TECHNOLOGY IN INDIA

CIVIL, ELECTRICAL, MECHANICAL

1. Civil Engineering
2. Civil & Sanitary
3. Overseer (Civil)
4. Draughtsmanship (Civil)
5. Electrical Engg.
6. Draughtsmanship (Electrical)
7. Mechanical Engineering
8. Draughtsmanship (Mechanical)

OTHER BRANCHES OF ENGINEERING

1. Aeronautical Engineering
2. Agricultural Engineering
3. Aircrafts Maintenance Engineering/Aero-Mechanical
4. Automobile Engineering
5. Auto. Mechanic.
6. Boilers & Engine Maintenance
7. Chemical Engineering
8. Coal Mining
9. Internal Combustion Engines
10. Marine Engineering
11. Metallurgy
12. Mining Engineering
13. Nauticals (Certificate of Competency, Ministry of Transport)
14. Public Health Engineering
15. Refrigeration Mechanic
16. Rural Water Supply & Sanitation Engineering.
17. Sanitation Engineering.
18. Ship Wright
19. Sugar Engineering/Boiling
20. Tele Communication Engg.
21. Town & Regional Planning.
22. Train Examiner Apprentice
23. Wireless Telegraphy.

RADIO & SOUND ENGINEERING

1. Electrical Communication Engineering
2. Cinematography
3. Cinematography & Sound Engineering
4. Commercial Platography
5. Radio Mechanic
6. Sound Engineering
7. Radio Engineering

TECHNOLOGY

1. Applied Chemistry
2. Ceramic Tech/Glass & Enamel
3. Dyeing & Printing Tech.
4. Electronics
5. Fish Technology
6. Food Technology
7. Hosiery
8. Instrument Technology
9. Instrument Mechanic
10. Jute Technology
11. Leather Manufacture (Tanning)
12. Leather Tech/Boots Shoe Making
13. Navigation
14. Oils, Soap & Paint Technology
15. Oil Technology
16. Paint Technology
17. Petroleum Technology
18. Printing Technology
19. Sericulture
20. Soap Technology
21. Surgical Instruments Manufacture
22. Textile Chemistry (Spinning & Weaving)
23. Textile Technology
24. Welding Technology

ART & ARCHITECTURE

1. Architecture & Applied Art
2. Art
3. Commercial Art

Appendix XIII-1 (Continued)

TRADES

1. Electrician
2. Wireman Apprentice
3. Hotel & Catering Industry
4. Machinist
5. Fitter
6. Turner
7. Tin Smithy
8. Blacksmithy
9. Moulding & Foundry
10. Pattern Making
11. Marine Motor Room Engine Mechanic
12. Cane Work
13. Trained Maistry
14. Decorative Carpentry
15. Cabinet making
16. Masonry
17. Tracers
18. Plumbing
19. Carpentry
20. Wood Turning & Lacquer work
21. Handloom Weaving
22. Wool Knitting & Weaving
23. Fibre Work
24. Photography
25. Hand Made Paper Making
26. Sarang (Boatswain)
27. Sukamu (Quarter Master)
28. Khalasi (Sailor)
29. Pottery-Making

TAILORING & EMBROIDERY COURSES

1. Master Tailor
2. Teacher's Training Course in Needle Craft (A & B
3. Tailoring and Cutting (Groups)
4. Tailoring Course in Womens' & Children's Garments
5. Practical Tailoring Course in Women's and Children's garments
6. Embroidery and Fancy Work

CRAFT TEACHERS' COURSES

1. Tailoring
2. Needle Work & Embroidery
3. Wood Work
4. Hand Spinning and Weaving
5. Agriculture
6. Cardboard Work & Book Binding
7. Leather Work
8. Metal Work
9. Cane Work
10. Bamboo Work
11. Cane and Bamboo Work

Appendix XIII - 2

Types of Courses offered under the Craftsman Training Scheme in India

Technical Trades

1. Blacksmiths
2. Carpenters
3. D'Man Civil
4. D'Man Mech
5. Electricians
6. Electroplators
7. Fitters
8. Grinders
9. Linemen/Wiremen
10. Machinists
11. Mechanics I.C.E.
12. Mechanics Instruments
13. Mechanics Motor
14. Mechanics Radio
15. Mechanics Refrigerators
16. Mechanics Steam
17. Mechanics Tractors
18. Moulders
19. Overseers
20. Painters
21. Pattern Makers
22. Plumbers

Technical Trades

Appendix XIII - 2
(Continued)

23. Sheetmetal Workers
24. Surveyors
25. Tool Makers
26. Turners
27. Watch Repairers
28. Welders (GAS & ELEC.)
29. Wireless Operators

Vocational Trades

1. Bleaching, dyeing and calico printing
2. Book-binding
3. Cutting & Tailoring
4. Embroidery & Needle work
5. Hand-weaving of fancy and furnishing fabrics
6. Hand composition and proof reading
7. Hand-weaving of woollen fabrics
8. Knitting with hand and machine
9. Manufacture of footwear
10. Manufacture of household utensils
11. Manufacture of sports goods (leather)
12. " " (Wooden)
13. " " (Misc)
14. Manufacture of suit cases & leather
15. Preservation of fruits & vegetables including confectionary
16. Printing machine operation

EDUCATION IN INDIAINSTITUTIONS, STUDENTS AND EXPENDITURE

Year	Number of institutions	Number of students on rolls (in lakhs)	Total expenditure (in crores of rupees)
1954-1955	3,43,071	312.67	165.01
1955-1956	3,66,637	339.24	189.66
1956-1957*	3,77,718	357.75	202.24

* Provisional

(Source: "India 1959" -

A Reference Annual).

Statement showing the relative position of expenditure on Technical Education and General Education in India during 1951-52 to 1960-61 (This expenditure is only that incurred on Five Year Plan Schemes of consolidation and Development and is exclusive of expenditure incurred on the regular Education schemes of the non-Plan nature)

Table I (Rs. in Crores)

	1951-52 1952-53 1953-54 1954-55 1955-56 1956-57 1957-58 1958-59 1959-60 1960-61					Total	Plan as % of (9)	
	Actuals	Actuals	Actuals	Actuals	(Est.)			7	8
(a) Technical Education	3.7	3.9	4.3	3.9	4.4	20.2	22.7	89.0
(b) Education (including Technical Education)	19.8	22.4	26.6	37.3	46.8	152.9	168.8	90.6
(c) a) as percentage of b)	18.7	17.4	16.2	10.5	9.4	13.2	13.4	-

Table II (Rs. in Crores)

	1951-61 (Plan)		1956-57 Actual	1957-58 Actual	1958-59 Revised	1959-60 (Plan) Est.	1960-61 (Total) (Col. 4 + 7 + 8)	1960-61 as % of (Col. 4 + 7 + 8)
	(Original)	(Revised After appraisal)						
(a) Technical Education	48.00	60.00	52.28	6.87	10.71	16.45	39.81	74.9
(b) Education	307.00	304.78	275.00	35.33	54.75	71.47	184.75	67.2
(c) a) %age of (b)	15.60	20.00	19.00	19.40	19.60	25.00	21.20	-

(Source: - Planning Commission of India - Education Division)

Appendix XVI

Some Statistics
1955-56

S t a t e	Percentage of	Percentage of
	children in pri- mary stage to those of school going age.	children in secondary stage to those of school going age.
1	2	3
Andhra ..	56.8	11.0
Assam ..	59.4	14.8
Bihar ..	35.6	8.2
Bombay ..	72.2	16.1
Jammu & Kashmir ..	22.8	7.7
Kerala ..	99.8	27.7
Madhya Pradesh ..	44.0	7.5
Madras ..	66.4	15.4
Mysore ..	66.1	14.0
Orissa ..	30.9	4.2
Punjab ..	56.6	21.6
Rajasthan ..	24.1	8.1
Utter Pradesh ..	33.5	12.2
West Bengal ..	84.2	18.1
A. and N. Islands ..	46.4	11.2
Delhi ..	71.3	39.9
Himachal Pradesh ..	47.4	12.8
Laccadive, Minicoy and Admindive I Islands	67.4	..
Manipur ..	99.8	17.1
N.E.F.A. ..	*	*
Tripura ..	70.2	17.7
India ..	53.1	13.5

* Population figures are not available.

(Source: Education in the Reorganised States 1955-56).

Appendix XVII

Description of Advisory Councils, Commissions
and Committees

I. Central Advisory Board of Education

Constitution:

Chairmen: Minister of Education of the Govt. of India

- Members :
- a) All Educational Ministers of the States
 - b) Five members of the Parliament
 - c) Two members of the Inter-University Board
 - d) One member of the Indian Council of Agricultural Education.
 - e) Sixteen members to be nominated by the Govt. of India of whom four shall be women.
 - f) The Educational Adviser to the Govt. of India.

Functions: 1. To advise Government on any educational question which may be referred to it by the Govt. of India or by any local Government

2. To call for information and advice regarding educational development of special interest or value to India and to circulate it with its recommendations to the Govt. of India and State Governments,

II. University Grants Commission:

Constitution:

The Commission shall consist of 9 members to be appointed by the Central Government

The members shall be chosen as follows:-

- a) Not more than three members from among the Vice-Chancellors of Universities.
- b) Two members from among the Officers of the Central Government.
- c) The remaining members from among persons who are educationists of repute of who have obtained high academic distinctions.

The Central Govt. shall nominate a member of the Commission, not being an Officer of the Central Govt. or of any State Govt., to be the Chairman thereof.

Functions:

- i) To take up steps in consultation with the Universities or other bodies concerned for the promotion and co-ordination of University education and for the determination and maintenance of standards of Teaching, Examination and Research in Universities;
- ii) To inquire into the financial needs of Universities;
- iii) To recommend measures for the improvement of University education and advise the University upon the action to be taken for the purpose of implementating such recommendations;
- iv) To advise Central or State Governments for any general or specified purpose;
- v) To advise any authority on the establishment of a University or on proposals in connection with the expansion of activities of any University;
- vi) To perform such other functions as may be prescribed or as may be deemed necessary by the Commission for advancing the cause of higher education in India.

III. Planning Commission:

The Planning Commission though established as a separate body ensures close liaison with Govt. The Prime Minister is

the Chairman of the Commission. Its members include cabinet Ministers. The Secretary to the Cabinet functions as Secretary to the Commission. Important issues and problems arising in the Ministries are generally discussed here. This ensures close liaison with Government.

There are various technical divisions of the Commission which scrutinise schemes to be included in the Plan and prepare material for the Plan. They also effect a follow up and conduct technical studies and scrutinise references made by Ministries, Governments and Voluntary Agencies in connection with planning.

IV. Council for Scientific and Industrial Research

The Government of India has set up a Council of Scientific and Industrial Research in furtherance of their policy to -

- i) foster and promote and sustain a cultivation of Science or Scientific Research in all its aspects, pure, applied and educational;
- ii) to ensure adequate supply within the country of Research Scientists of highest quality;
- iii) to encourage and initiate with all possible speed in the programmes of the training of Scientific and Technical Personnel on a scale adequate to fulfil the country's needs for Science and Education, Agriculture and Industry, and Defence;
- iv) to ensure that the creative talent of men and women is encouraged and find full scope in scientific activity;
- v) to encourage individual initiative for the acquisition and dissemination of knowledge, and for the discovery of new knowledge, in an atmosphere of academic freedom;
- vi) and in general, to secure for the people of the country all the benefits that can accrue from the acquisition and application of scientific

knowledge.

The Scientific Research is carried out mainly through this council and the various National Laboratories set up under its control. It also awards grants-in-aid to Scientists in Research Institutions. It maintains a register of Scientific and Technical Personnel in the country, and it is the chief vehicle of Government Policy for the promotion of Scientific and Industrial Research in India.

V. All-India Council for Technical Education:

Constitution:

- a) Chairman - Minister-in-charge Central Govt.
- b) i) Educational Adviser (Tech,) to the Government of India
ii) Educational Adviser to the Government of India
- c) Chairmen of the Regional Committees of the Council (Ex-Officio)
- d) Chairmen of the All-India Boards of Technical Studies (Ex-Officio)
- e) Representatives of the Ministries and Departments of the Government of India,
- f) Two members of the Lok Sabha elected by it
- g) One member of the Rajya Sabha elected by it
- h) i) One representative of each of the States
ii) Four representatives of the Union Territories to be nominated by the Central Government.
- i) Eight representatives of Industry and Commerce to be nominated by organisations approved by the Government of India.

- j) Four representatives of Labour to be nominated by organisations approved by the Government of India.
- k) One member of the Central Advisory Board of Education
- l) One member of the Inter-University Board of India
- m) Two representatives of the Association of Principals of Tech. Institutions in India,
- n) Two representatives of Professional Bodies
- o) Not more than two members nominated by the Government of India to represent other interests.
- p) Chairmen, University Grants Commission (Ex-officio)
- q) One representative of the National Institute of Science of India,
- r) One representative of the National Council for Rural Higher Education.

Functions:-

The immediate task of the Council for Tech. Education will be to survey the needs of the country as a whole for higher technical education, with special reference to prospective post-war needs, and to advise in what areas technical institutions should be established for what branches of technology each should provide and up to what standards they should operate. In particular it will be empowered:-

a) to survey the whole field of technical education in consultation with Provincial Govts. and such Acceding States as may be willing to co-operate with it;

b) to consider such immediate projects as are already under consideration by various Ministries of the Govt. of India, e.g., the provision of senior All-India Polytechnics on the lines of the Massachusetts Institute of Technology or

the establishment of a Tech. College for Electrical (Power) Engineering, and to assign to these their appropriate place in all All India Scheme; and

c) to conduct preliminary investigations with a view to ascertaining the conditions on which the authorities in control of existing technical institutes would be prepared to cooperate in an All India Scheme.

VI. National Council for Training and Vocational Trade:

Constitution:

- a) The Union Minister of Labour and Employment
- b) The Secretary to the Govt. of India, Ministry of Labour and Employment.
- c) The Director General of Resettlement & Employment, and one representative each of the Deptt. of Commerce and Light Industries and Department of Chemical and Pharmaceutical Industries and Department of Heavy Industries in the Ministry of Commerce and Industry, Department of Transport, Deptt. of Communications and Department of Civil Aviation in the Ministry of Transport and Communications, Deptt. of Iron and Steel, Deptt. of Mining and Deptt. of Fuel in the Ministry of Steel Mines and Fuel, Ministry of Scientific Research and Cultural Affairs, Ministries of Finance, Works, Housing and Supply, Defence, Railways, Rehabilitation, Irrigation and Power, Community Development and the Planning Commission of the Government of India. Such representatives should, as far as possible, be 'technical' persons.
- d) One representative each of the Governments of those States which have set up a Council, Board or Department of Technical Education.
- e) Five representatives of Govts. of all other States to be nominated by the Govt. of India.

- f) Five representatives of Employers' Organisations to be nominated by the Central Govt. in consultation with Employers' Organisations.
- g) Five representatives of the 'Workers' Organisations to be nominated by the Central Government in consultation with 'Workers' Organisation.
- h) Five representatives of professional and learned bodies to be nominated by the Govt. of India.
- i) One representative of the All-India Council for Technical Education to be nominated by that Council.
- j) Two experts to be appointed by the Govt. of India
- k) The Director of Employment Exchanges, Ministry of Labour and Employment.
- l) The Director of Training, Ministry of Labour and Employment - Member Secretary.

Functions:

1. To advise Govt. of India in Co-ordinating vocational Training throughout India.
2. To establish and award - National Trades Certificaties
3. To prescribe Standards in respect of syllabuses, equipment, duration of courses and methods of training.
4. To affiliate examining bodies with a view to bringing them within the scheme of the award of National Certificaties and lay-down the standard of proficiency for passing the examinations leading to the award of these certificaties.
5. To arrange inspection of training institutes in the country to ensure prescribed standards.
6. To recognise training institutes run by Govt. or by private agencies.
7. To prescribe qualifications for the technical staff of training institutes.

8. To advise the Central Government regarding distribution to State Govts. of the contribution of the Govt. of India towards expenditure on Craftsmen Training Scheme.

VII. All-India Council for Secondary Education

It is an Advisory body on Secondary Education headed by Jt. Secretary to the Govt. of India - Charge of Secondary Education as its Chairman.

a). One member to be nominated by each of the following bodies:

i) All-India Council for Technical Education

ii) University Grants Commission

iii) All India Council for Elementary Education

iv) All India Federation of Educational Associations

v) Association of the Principals of the Training Colleges

b) A nominee from each of the 14 States

c) Five experts in the field of Secondary Education to be nominated by the Govt. of India.

d) The head of the Secondary Education Division

e) Director in charge of Extension Programmes for Secondary Education,

f) Deputy Financial Advisor

Functions:

1) To review the progress of Secondary Education throughout the country and to serve as an expert body to advise the State and Central Governments.

2) To initiate proposals for the improvement of Secondary Education in the light of the experience gained.

- 3) To examine and recommend proposals for research in problems relating to Secondary Education.

VII. All India Council for Elementary Education

Constitution:-

Chairman: a) Educational Adviser to the Govt. of India.

Members : b) 14 members of the States' Education Deptts. (one each).

c) One member of the Central Advisory Board of Education

d) One representative of the Planning Commission

e) One representative of the All India Council for Secondary Education.

f) One Principal of a Training College

g) Two prominent educationists connected with Basic Education, Girls' Education and Education of Backward Classes.

h) The head of the Basic and Social Education Division of the Ministry of Education.

Functions:-

1. To advise the Govt. of India, the State Govt. and the local bodies on all matters relating to Elementary Education.
2. To prepare programmes for the early implementation of the goal provided in the Constitution for free and compulsory education to all the children until they complete the age of 14.
3. To prepare detailed programmes for the expansion and improvement of elementary education in the States.
4. To organise or to assist in organising research in

the administrative financial and pedagogic problems of Elementary education and to publish the results thereof.

5. To assist in the production of literature and to improve the quality of Elementary Education,
6. To review the progress made in the field of elementary education.
7. To conduct sample surveys and to undertake special investigations and to carry out all such fact finding enquiries as may be deemed necessary from time to time.
8. To provide proper guidance, leadership and co-ordination for the improvement and expansion of Elementary Education.

- 3) To examine and recommend proposals for research in problems relating to Secondary Education.

VII. All India Council for Elementary Education

Constitution:-

Chairman: a) Educational Adviser to the Govt. of India.

Members : b) 14 members of the States' Education Depts.
(one each),

c) One member of the Central Advisory Board of Education

d) One representative of the Planning Commission

e) One representative of the All India Council for Secondary Education.

f) One Principal of a Training College

g) Two prominent educationists connected with Basic Education, Girls' Education and Education of Backward Classes.

h) The head of the Basic and Social Education Division of the Ministry of Education.

Functions:-

1. To advise the Govt. of India, the State Govt. and the local bodies on all matters relating to Elementary Education.
2. To prepare programmes for the early implementation of the goal provided in the Constitution for free and compulsory education to all the children until they complete the age of 14.
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- the administrative, financial and pedagogic problems of Elementary education and to publish the results thereof.
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 6. To review the progress made in the field of elementary education.
 7. To conduct sample surveys and to undertake special investigations and to carry out all such fact finding enquiries as may be deemed necessary from time to time.
 8. To provide proper guidance, leadership and co-ordination for the improvement and expansion of Elementary Education.

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Introduction

- (A) In March 1957, by decree of the Minister of Education of 13 March 1957 no.27788/s a special Department for Vocational education at the Ministry of Education called: Djawatan Pendidikan Kedjuruan came into existence,

It emphasises that the Government considers vocational Education to be very essential for the construction and the progress of the nation.

Through the national budget for the Ministry of Education attempts have been made to get an allocation, which is in proportion with that of the Dept. of Gen. Ed. as 7 to 3.

Vocational Education receives top priority in the "educational policy" of the Ministry.

Vocational Education fostered by the Dept. of Vocational Education consists of several types of Technical Education. (Schools for training in cottage-industries, Junior Technical Schools, Senior Technical School, various types of Business Education, (Primary Business Courses, Junior Commercial High Schools, Senior Commercial High Schools), various types of Education for Women (Schools for Domestic Science in a 2 years' course, Schools for Domestic Science in a 4 years' course), various types of Vocational Teachers Training (Teachers Training Colleges for Technical Education, Training Colleges for Teachers of Home Economics, for Business Education several BI Courses), and various Educational facilities for other Vocations (Schools for Social workers, Schools for Law-officers, Schools for Civil Administration). The establishment of School for Hotel-management is being prepared.

- (B) Vocational Education with a particular character is organized by other ministries, e.g:

- (1) School for Agriculture, School for Cattle-breeding organized by the Ministry of Agriculture.

- (2) Work-centres for handiwork/technology for adults, by the Ministry of Labour.
- (3) School for Textiles by the Ministry of Industries.
- (4) School for Aviation by the Ministry of Communication.
- (5) School for Navigation by the Ministry of Navigation.

(C) The philosophy of Vocational Education

In accordance with the Fundamental Education Act no. 12, 1954 article III, clause 4, Education will be based on the principles of the Pancha Sila (Five Fundamental Principles, which form the fundamental basis of the Republic of Indonesia) and will be the expression of the National Culture.

The Pancha Sila are the 5 basic principles:

- (1) Recognition of One God, the Almighty.
- (2) Humanity.
- (3) National Consciousness.
- (4) Democracy.
- (5) Social Justice.

Indonesian National Culture comprises all material and spiritual assets of the Indonesian Nation.

- (1) The 1st principle aims at the education of the child according to his religion (Moslem, Protestant, Catholic, Buddhist etc.).
- (2) The 2nd principle recognizes that Indonesia's spiritual and cultural assets are to be used for the welfare of humanity as well as that each man has to serve his fellow-man.
- (3) The 3rd principle aims at an education based on the national character and national consciousness of the Indonesian people.

(4) The 4th principle (democracy) means:

- a. Every Indonesian child should be given ample opportunity to develop his abilities.
- b. Provision of educational facilities should be in accordance with local needs.
- c. Opportunity should be free to establish private education in accordance with religion or life - attitude.

(5) The 5th principle of Social Justice means:

Every Indonesian citizen is entitled to education in order to achieve a prosperous social condition.

(D) Article II clause 3 on the aims of Education reads as follow

The aim of education is to train democratic citizens with a moral character and a sense of responsibility for the welfare of the society and the country. According to article III clause 7 Secondary Education (General and Vocational) aims at extension and development of primary education to develop ideas, to guide the pupils' abilities as members of the community, to train skilled persons in special fields according to their aptitudes and the needs of the community and/or to prepare for tertiary education.

Training skilled persons in special fields in accordance with their aptitudes and the needs of the community has become the function and the task of Vocational Education.

1. Establishing the needs of Education

(A) In relation to General and Higher Education

The system of Vocational Education is parallel with the General Education system.

The basis is 6 year's Primary Ed., followed by a 3

year's Junior Secondary Education (Vocational or General) and 3 years' Senior Secondary Education either Vocational or General.

In the Vocational Schools there are besides the special subjects, in accordance with certain types of vocational education also general subjects like languages, Mathematics, Sciences, Physical Education. The contents of these subjects are adapted to the aims of Vocational Education.

This "two trak system" has some weakness concerning the relation between the Primary and Junior Secondary Education.

Pupils who have finished the Primary School should be able to choose the type of Junior Secondary School they wish to enter, though it may not be possible to know their specific aptitudes (SMP., ST., SMEP, SKP. etc).

Would it not be better to create a kind of "comprehensive school" at Junior High level?

All the pupils from the S.R. (Primary School) who can and wish to proceed to a higher education should be enrolled at one type of Junior High School where both general subjects and various vocational subjects are taught.

In the "comprehensive school" the children can discover their aptitudes. Afterwards they can proceed to the Senior Secondary School (General or Vocational) suited to their aptitudes.

This matter is one of the aspects for consideration in view of the Revision of the Educational system.

Students of Senior Secondary Vocational schools who are extremely gifted in the academic subjects can go on to tertiary Education. Graduates from the S.M.E.A. (Commercial High School) can proceed to the Faculty of Economics whereas graduates from the S.T.M. (Technical High) can take the Faculty of Technology.

One type of technical institution for the training

of Higher technicians on the level of the Faculty of Technology (Kat. A, B, C) is being planned.

Plans are being made to equalise the BI Courses (a 3 year's Teachers' Training after the Senior Secondary) with a college on tertiary level.

(B) In relation to Labour Market

Vocational Education should meet the needs of skilled people in the field of industry, trade, economy, family, and social-welfare. A Committee for Research of Labour (Ministry of Labour) is surveying technical work in the field of industry and economy. By analysing certain work, the training and institutes required to cover the needs of this work can be determined. The quantity of skilled workers needed can be determined by these inquiries. Technical Schools keep in touch with the industry for the practical training and to investigate employment possibilities of the graduates. Possible vacancies at the various works should be made known to the schools.

(C) In relation to Professional Institution

Graduates of the Vocational Schools on Senior Secondary level are also assigned to teach at the Junior Secondary Vocational Schools the professional or related subjects. This is an emergency measure to cover the current shortage of teaching personnel.

2. Structure of Vocational and Technical Education

(A) Technical Education

(1) Schools for Training in Cottage Industries.

Duration: 2 years after Primary Education.

The aim is preparation for "home-industries".

The graduates are able to work on their own.

(2) Junior Technical Schools (3 years).

Aims: to provide training of skilled artisans for technical industries (workshops and factories).

(3) Senior Technical Schools: (3 years after the Junior High or Junior Technical) aim at training of foremen, supervisors, draftsmen in factories.

(4) Teachers Training Colleges for Techn. Ed. (3 years after the Junior Techn.) provide teachers for the workshop of the Junior Technical.

(B) Business Education

(1) Junior Commercial High Schools, 3 years after Primary Education. Provision of cadres trained for business enterprises.

(2) Senior Commercial High Schools, 3 years after the Junior High. Provision for a more elaborate training in business affairs and clerical work for government and private offices and business enterprises.

(3) Primary Business Courses, (3 years) for adults who work in the commercial field, and who have finished Primary Education. This training is on the same level as the Junior Commercial High and is an upgrading course.

(C) Education for Women (Home-making Education).

(1) School for Domestic Science provides a 2 years' course after Primary Education.

Provides practical training to meet the requirements of the daily life: food, clothing, home-making.

This school is adapted to local needs.

(2) School for Domestic Science (a 4 years' course after Primary Education) Education for family-welfare; food, clothing, home-making, crafts, child-care.

This skill obtained can be used outside the home, in community circles, boarding-houses, hospitals etc.

- (3) Training College for Teachers of Home-Economics, 4 years after the Junior High.

Training teachers in home-making and family-welfare for the School for Domestic Science.

(D) Educational facilities for other Vocations

- (1) School for Social Workers, 4 years after the Junior High, training "social workers".
- (2) School for Law-officers, training officers for district-courts.
- (3) School for Civil Administration.

A 3 years in-service-upgrading course for those who have had a Primary School Education.

- (4) School for Civil Administration of Senior level.

A 3 years in-service-upgrading course for those, who have had a Junior High Education or have finished the above mentioned School for Civil Administration.

- (5) School for Hotel-management (3 years). The students are at least 18 years old. Minimum qualifications Junior High. The school provides training in hotel-management, service and cooking.

3. Legislation

Provisional Constitution 1950:-

- (1) As regards Education the Provisional Constitution provides:

Article 30:

1. Every citizen is entitled to receive an education.
2. The choice of education is free.

3. Teaching is free, except for the Supervision to be exercised by public authority in accordance with the law,

Article 40:

The authorities shall protect cultural, artistic and scientific freedom. Upholding this principle, the authorities shall, to the best of their ability, promote the development of the nation in culture, art and science.

Article 41:

1. The authorities shall promote the spiritual and physical development of the people.
2. The authorities shall in particular aim at the speediest possible abolition of illiteracy.
3. The authorities shall satisfy the need of public education which shall have for its basic objects the deepening of national consciousness, the strengthening of the unity of Indonesia, the stimulating and deepening of the sense of humanity, of tolerance and of equal respect for everyone's religious conviction and the provision within school hours of the opportunity for religious teaching in accordance with the parents' wishes.
4. As regards elementary education, the authorities shall aim at a speedy introduction of General compulsory education.
5. The pupils of the private schools which comply with the standards of efficiency laid down by law for public education have the same rights as accorded to pupils of public schools.

(2) In the Act no. 4 1950 the following is stipulated on the Principles of Education for Indonesia:

Article I, clause 1, subclause 2:

By school education is meant education given to a group of ten (10) pupils or more.

Article II, clause 3:

The Education aims at creating able persons with a moral character and making them democratic citizens responsible for the welfare of the community and the Nation.

Article V, clause 7 subclause 3:

The Secondary Education (General and Vocational) aims at the extension and development of elementary education and the development of life's ideas and guidance of the pupil as a member of the community, training of skilled persons in special fields according to their aptitudes and the needs of the community and/or preparation for tertiary education.

(3) By decree of the Minister of Education of 13 March 1957 no. 2778/C a Department of Vocational Education is established.

4. Setting up Programme, Revision of Programme, and Programme Division

(A) Setting up Programme

The curriculum existing is still a modification/Perfection of one used by pre-war Vocational Schools. During the early years of our independence the existing curriculum was translated into Indonesian (1945 - 1948).

Tradually measures were taken to improve the curriculum, to meet the needs in the fields of industry and

commerce, and the development of family-welfare. New divisions were created.

The Curriculum comprises 3 aspects of the syllabus:

(a) Professional Subjects;

covering an average of 40-60% of the whole curriculum.

(b) Related Subjects;

providing theoretical information for the professional subjects.

(c) General Subjects;

providing education to develop moral character and to train democratic citizens with a sense of responsibility for the welfare of society as a whole.

The Vocational Schools in the main have the character of a training centre (workshop).

(B) Revision of Programme

Revision of the curriculum is carried out as follows:

(a) The Central Inspectorate provides a draft-revision which is discussed with the Regional Inspectorates and Headmasters, who beforehand have closely examined the programme with their staff.

(b) Seminars or Conferences of Inspectors are entitled to propose a revision.

(c) The final draft is submitted to the Director of the Vocational Education Department, who can make practical adjustments if not of fundamental character.

Major Revision of fundamental character and significant importance should be submitted to the Minister of Education.

In view of an overall revision and development of Technical Education a Committee has been set up for research work, i.e.

The special Committee for the Research of Technical Education besides "The National Committee for Investigating Technical Education" which has a broader scope of activities.

Under consideration is the setting up of Committees for the Research into Commercial and Home Science Education:

Programme division

List of divisions of Technical Education

(1) Upgrading Course for
Technical Teachers

Machine
Building construction
Automobile
Electricity
General metal
Architecture
Chemistry
Woodworking

(2) Teachers training
Techn. Education

Building
Auto Diesel
Electricity
Machine
Ship building
Ship engines
Automobile
Printing
Architecture
Woodworking
Foundry
Book binding

(3) Senior Technical
High School

Irrigation
House building
General metals
Electricity
Architecture
Automobile

Chemistry
Radio
Ship engines
Ship building
Road construction

(4) School for cottage
Industries

Woodworking
General metal
Carpentry
Masonry
Automobile
Electricity
Bicyclo-shop
Plaiting
Carving
Boat building
Ceramics
Furniture
Textile (weaving)
Printing
Sewing

(5) Junior Technical High
School

House building
Irrigation
Wood working
General metals
Electricity
Automobile
Carpentry
Boat engines
Boat building
Radio
Photography
Molding
Auto Diesel
Textile (weaving)
Land survey
Carving
Ceramics

Teachers' Training Colleges (BI Courses)

Economics
Administration
Commerce
Home economics
Physios
Biology
English
Indonesian
Drafting
Mechanical engineering

Chemistry
Mathematics
Wood working
Machine - shop
Electricity
Automobile
Diesel
City construction
Road building

Samples of Curricula

Teachers' Training for Technical School

<u>Section Diesel</u> <u>General Subjects</u>	<u>Related subjects</u>
1. Indonesian language	8. Applied mathematics
2. English language	9. Industrial science
3. Teaching technique	10. Engineering drawing
4. Psychology	11. Blueprint reading
5. Civics/sociology	12. Terminology
6. Physical education	13. Safety
7. First aid	
	<u>Workshop</u>

Junior Technical High School

Mining & Geology dept.

1. Wood-working	14. Geology practice
2. Metal-work	15. Mining practice
3. Drafting	16. Algebra, mathematics
4. Projection	17. Geometry
5. Mining engineering drawing	18. Physics
6. Geological drawing	19. Materials technology
7. Mining science	20. Indonesian language
8. Geology	21. English language
9. Mineralogy & petrology	22. Industrious education
10. Mining regulation and law	23. History
11. Survey engineering	24. First aid
12. survey practice	25. Religion
13. Mining survey practice	26. Physical education

School for Cottage Industries: Section boat-building

1. Wood & metal working practice
2. Boat-building practice
3. Drafting
4. Technology & materials

5. Work science (technique)
6. Projection drawing

Curriculum of the Primary Business
Course (KDP, 3rd.)

Professional subjects:

1. Bookkeeping
2. Commercial Arithmetic
3. Business Correspondence (Indonesian)
4. Shorthand
5. Typing
6. Commercial Practice
7. Material Technology

Related subjects:

1. Indonesian Language
2. English Language
3. Commercial Science & Law
4. Business Economics
5. Algebra
6. Physics
7. Geography

Curriculum of the Junior Commercial
High School (S.M.E.P.) 3 years

Professional subjects:

1. Bookkeeping
2. Commercial Arithmetic
3. Business Correspondence (Indonesian)
4. Shorthand/Typing
5. Material Technology
6. Salesmanship and Advertising

Related subjects:

1. Indonesian Language
2. English Language

3. Commercial Science & Law
4. Management

General subjects:

1. Algebra
2. Physics
3. Natural Science
4. History
5. Geography
6. Writing
7. Physical Education
8. Morals

Curriculum of the Senior Commercial
High School (S.M.E.A.) 3 years

Professional subjects:

1. Bookkeeping
2. Commercial Arithmetic
3. Business Correspondence (Indonesian)
4. Business Correspondence (English)
5. Shorthand
6. Typing
7. Material Technology/Chemistry
8. Salesmanship & Advertising

Related subjects:

1. Indonesian Language
2. English Language
3. General Economics (Economics, Statistics, Monetary, Credit, Banking, International Trade),
4. Organization & Commercial Management
5. Business Economics
6. Law (Civil, Commercial, Administration, Fiscal)

General subjects:

1. Algebra
2. Economical History
3. German language
4. Physical Education
5. Morals

Curricula of Home-making Education

School for Home-Economics (2 years course)

Professional subjects:

1. Cooking
2. Knowledge of food material, recipes
3. Nutrition
4. Knowledge of home equipment
5. Handicraft
6. Laundry-equipment, Textiles
7. Home management

Fundamentals in:

1. Clothing construction
2. Darning and mending
3. Needlework

General & Related subjects:

1. Indonesian language
2. Arithmetic
3. Elementary administration
4. Hygiene
5. Physics, Biology
6. Geography, History
7. Drawing
8. Music
9. Physical education
10. Social education, Religion

Workshop

School for Home Economics (4 years course)

Home management Section: (A section)

Professional subjects:

1. Cooking:
 - a. national dishes
 - b. international dishes
 - c. preserved food
2. Nutrition
3. Knowledge of recipes, menus
4. Kitchen equipment and food material
5. Home equipment
6. Handicraft, flower arrangement, etc.
7. Laundry/ironing
8. Laundry equipment, textiles
9. Hygiene
10. Home management

Clothing Section: (B - section)

Professional subjects:

- 1.)
- 2.) Clothing, included pattern drawing
- 3.)
4. Darning/mending
5. Textiles
6. Handicraft: fashion accessories etc.
7. Batios
8. Needle work techniques

General & Related subjects: (For A and B section)

1. Indonesian language
2. English language
3. Physics, Chemistry
4. Biology
5. Administration
6. Drawing (on paper)

7. Child's development
8. Mass education and Civics
9. Music
10. Physical education
11. Religion

Workshop

Training School of teachers for Home
Economics S.G.K.P. (4 years)

Home Management Section:

Professional subjects:

1. Cookery techniques
2. Knowledge of recipes
3. Nutrition
4. Knowledge of food material and kitchen
5. Effective room furnishing
6. Home management
7. Knowledge of home equipment
8. Laundry techniques and ironing
9. Knowledge of laundry equipment/textiles
10. Home decorating

Clothing Section:

Professional subjects:

1. Clothing, including pattern drawing
- 2.
3. Needle work techniques
4. Darning and mending
5. Science of textiles
6. Development of regional dresses
7. Effective room furnishing
8. Batics, weaving, and other handicraft

General & Related subjects: (A+B - Section)

1. Indonesian language
2. English language
3. Education and psychology
4. Hygiene
5. Baby's care and education of children
6. Administration and bookkeeping
7. Drawing (on paper as well as on blackboard)
8. Chemistry, physics
9. Mass education
10. History
11. Practical teaching at primary school of home economics, extension work
12. Physical education
13. Religion

Workshop

B-I Course Home Economics

Home management:

1. Cookery techniques and science of recipes
2. Nutrition
3. Food material, Kitchen equipment
4. Home management, laundry techniques and textiles
5. Child's care and education of children
6. Hygiene
7. Science of home-equipment, laundry/ironing equipment and textiles.
8. School-organization and school equipment
9. Civics and mass-education
10. Chemistry/Physics
11. Education/Psychology
12. Indonesian language
13. English language
14. Field trips
15. Practical teaching

Workshop

5. Selection of Students

In general before proceeding to any junior Vocational school, a pupil must qualify by passing the Junior Secondary School entrance examination. (This examination is just the same for all pupils finishing their Primary Education and intending to proceed to a Junior Secondary School, either General or Vocational).

For entrance into a Senior Secondary School a Junior Secondary School leaving certificate is required.

Special qualifications are required for the following aims.

(1) Technical Education

1. For the entrance to the Junior Technical School the marks for arithmetic and drawing are determinant factors.
2. Entrance to the Senior Technical School requires good marks for Algebra, Geometry and Physics.

(2) Commercial Education

- (a) Candidates for the Primary Business Course (KDP) must have completed a Primary School Course and have reached the age of 18.
- (b) Entrance to the SMEA (Senior Commercial High School) requires a Junior Commercial High School (SMKP) certificate or Junior Secondary School (SMP) certificate of the A or B division. Besides, the mark of 7 is essential for Bahasa Indonesia (the Indonesian language), English and Algebra.

(3) Home Science Education

No special qualifications are required.

(4) Educational facilities for other Vocations

- (a) Candidates for School of Civil Administration (KPA) must have a Primary School Certificate and have some experience in their job. They must be recommended by their principals.
- (b) Entrance for the High School for Civil Administration (KPAA) requires a Junior Secondary School certificate and job experience. Candidates are to be recommended by their superiors.
- (c) Candidates for the School for Law Officers (SMKA) must have an SMP certificate with fairly good marks. From every province only a few are admitted.
- (d) Entrance to the School for Social Workers (SPK) requires an SMP certificate, the age of 18, good health and good behaviour. At the close of every School year a promoting test is given. Evaluation is based on the students' report-marks which are granted on the basis of:
 - a. marks of the daily results.
 - b. marks of test - results.

6. Guidance of tutoring

Considering the great shortage of staff it is not quite possible yet to arrange tutoring or guidance of tutoring regularly. Incidentally it is experimented with, here and there depending on the tact of the Headmaster and his staff.

Every class of Technical Schools has its own guardian-teacher and its own class-captain. Both are entitled to stand by weak pupils.

7. Selection of personnel (teaching and administration staff)

The appointment of the teaching staff is based on diplomas obtained. Junior Secondary School teachers are

graduates of Senior Teacher Training Colleges (SGPT, = Technical Education Training College, SGKP, = Training College for Teachers of Home Economics).

Graduates of the S.M.E.A. (Senior Commercial High School) can be appointed to teach at the Junior Commercial High School. The teaching staff of the Senior High Schools consists of graduates of the BI Course or the University.

Those who are considered for promotion to Headmasters are qualified, and adequately experienced teachers, having a good career and leadership qualities.

Inspectors in the provinces are recruited generally from capable headmasters.

Central Department staff members are usually selected from experienced inspectors. The Director of the Department himself is usually chosen out of the Head of the Divisions in the Department.

In recruiting administration staff personnel in the regions and in the Ministry, special attention is paid to education, age and personality qualities.

The promotion of the administration staff is arranged according to one salary regulation valid for the whole staff of the administration of the Republic.

The position (rank) of teachers (headmaster) inspectors etc. is outlined in the Regulation mentioned above (P.G.P.N. = Government servants' Salary Regulation).

8. Training of personnel

Administration Staff in general have not completed any particular education to acquire knowledge and ability needed for their job. They have mostly completed primary and secondary general education. There are some of them who have completed typing, short-hand, book-keeping or other courses, mainly run by private bodies.

A member of the administration staff can improve his position by finishing the School for Civil Administration

(K.P.A.) which is equivalent to a Junior Secondary School, or the Senior School for Civil Administration (K.P.A.A.) which is equivalent to the Senior High School.

The National Administration Institute which was established about 2 years ago is entitled to organize on-the-job practice, aiming at raising and improving the qualities of Administration personnel.

In considering the training of technical teaching staff, both teachers and inspectors, it should be brought forward, that the colonial government had never established Educational Institutes for the training of Secondary School masters, whose position were generally occupied by foreigners in periods preceding the Second World War (pre-war periods).

The Indonesian Government has in view that Secondary School masters should be graduates of Universities or Colleges. But in the transition period of the time being, it is not possible to do this fully yet.

According to present conditions and circumstances Junior Vocational School teachers are graduates of Senior High Schools, and Senior Vocational School teachers have completed BI courses of 2 or 3 years after the Senior Secondary School.

The Ministry has started several up-grading courses for those who have taught at a vocational school without meeting the minimum requirements mentioned above.

To mention some up-grading courses:

- (1) Technical School Teachers' Course providing training to obtain a certificate for the qualification of teaching at Schools for training in cottage industries (S.K.) and Junior Technical Schools (S.T.).
- (2) The BI Course (a three years' course after the Secondary School providing the training of Junior and Senior Secondary School teachers.
- (3) The BII Course (a two years' course after the BI)

providing full qualification of teaching at the Senior Vocational School.

Besides up-grading courses common Teacher Training Institutes are run, e.g.:

- (4) Teacher Training Colleges for Technical Education (S.G. P.T.) providing education for teaching at Junior Technical Schools.
- (5) Training College for Teachers of Home Economics, to train teachers of home-making at the S.K.P.

To meet the need of teachers and the improvement of their knowledge and ability teachers and prospective teachers are sent abroad. These efforts are generally done in cooperation with foreign agencies, such as Ford Foundation, I.C.A. or within the frame of the Colombo-Plan.

9. Status of Personnel

The whole staff of the Vocational Education Department are appointed and dismissed by the Minister of Education with the exception of the top ranking functionaries who are appointed or dismissed by the President (the Director of the Department, Head of the Central Inspectorate).

The appointment of staff personnel is arranged by the Minister according to needs and as far as the budget and the staff personnel formation allow.

Dismissal is based on offences or bad behaviour according to certain standards. An official can apply for retiring on pension if the age and term of service together reach the number of 75 years or more. For the sake of rejuvenation of personnel a government servant can be granted a pension at the age of 55. The maximum amount of pension is 50% of the last salary.

Any Government servant has the right to take leave of 2 weeks a year. Once every six years he can take a 3 months' leave enjoying full salary.

Woman-officials in pregnancy have the right to take leave of one month and a half (1-1/2) before and the same period (2)

after the birth of the child. During the 3 months' leave her salary is fully granted.

A leave without any compensation of her salary can be granted to those who are intending to deepen their knowledge either in the home country or abroad.

An official with a basic salary of less than Rp. 490,- a month enjoys the right to compensation for medical treatment, for himself and his family. This facility is valid as well for persons on retired pay (pension). Those with a basic salary of more than Rp. 490,- a month can get a compensation if more than 3% of their net salary is spent for medical treatment.

The first appointment of an official is done by way of the Minister's decree. His position is regulated according to his education and experience. A regular salary raise is granted once a year or two, with the exception if that raise is postponed as an administrative punishment in connection with some offence or caused by inadequate ability or lack of seriousness in his job. Promotion is based on his conduct-state.

Compared with conditions in other Ministries, the position of teachers is not too bad. A junior secondary school teacher has to teach only 26 periods of 45 minutes a week. If he has to teach more than that, he is entitled to be paid overtime for extra hourswork. The higher the school level, the smaller is the maximum number of teaching periods.

10. Supervision

The Supervision of Vocational Schools is managed by the Director of the Department with the assistance of his staff, e.g.

The Head of Divisions at his office,

In the provinces he is represented by a Representative of the Ministry heading a staff of regional supervisors.

The supervision comprises personnel, organization, administration, finance, equipment, and the material of education. To smooth the task, every field of vocational education has its special supervisors.

11. Control of Students

Every School has a discipline (order) regulation concerning various matters, like the starting time for the school, the place for bicycles, the cleanliness of the classroom, behaviour in and outside the class-room, the use of the lavatory, break-time, permission to leave the schoolyard, to be absent etc.

Control is arranged by the Headmaster and his staff. The pupils' organization assists to control and keep discipline at schools.

At most schools the organization of Parents and Teachers is established. That organization collects money to improve school conditions and makes efforts to create a favourable atmosphere among the teaching staff, Parents and Pupils. Excursions and shows are often organized and financed by the organization.

12. Building and equipment. Safety

Many Vocational Schools have no buildings of their own yet, but share with other secondary schools. The existing buildings are generally simple. This fact is a great handicap because frequently no opportunities are available to practice shop and laboratory-work. A recreation-room is often missing, and no sport-ground is available near the school.

The school equipment is not yet satisfactory. The most needed equipment are machines, type-writers, sewing-machines and audiovisual aids.

Safety:-

Safety in workshops is also controlled by the Department; work-shop accidents rarely occur.

Regulations are placed in the workshops.

13. Text-book and documentation

In the early years after the proclamation of our independence mountains of difficulties were faced concerning text-books. The teachers arrange compendiums in the Indonesian language or make use of books translated into Indonesian from the Dutch language.

Gradually more and more books are composed by the Indonesian teachers themselves. At the present moment it could be said there is an Indonesian text-book for any subject at the Vocational Schools. It only remains to perfect the contents.

Every 3 years it is intended to revise all the text-books.

In the field of documentation many weak points are still prevailing due to the size of the country and poor communications.

In the main school-register some information is noted concerning pupils and their movement.

Periodical reports concerning the teaching staff, pupils, school-building, equipment, school-fee, administration etc. are sent by the Headmasters to the inspectors concerned in the provincial capital. The collection of those periodical reports is sent to the Central Inspectorate. Reports concerning any examination arranged by the examination-committee are sent to the regional inspectorate and to the Head of the Vocational Department.

What is still incomplete is information of graduates of the various schools.

14. Research

In view of the development and progress in the field of industry, technology, economy, social affairs continuous research of the efficiency of vocational education should be considered urgent.

This is carried out by the Research Division of the Dept. of Vocational Education and for the Technical Education in particular with the assistance of the National Committee for Technical Education and the special Committee for Technical Education.

The objectives include:

- (1) An over-all survey of the community, the industrial community and the natural riches on:
 - a. the types of work
 - b. skilled staff required
 - c. the quantity of skilled people
 - d. the possibility for developing the national resources
- (2) the aptitudes and the abilities with regard to several types of Vocational Education,
- (3) the curriculum should be effective and flexible
- (4) The improvement of the quality of teaching staff, equipment and building,
- (5) correlation with the General Education and the Universities
- (6) cooperation with other Ministries and private institutions which foster Vocational schools,
- (7) An integral - development of Vocational Education, in accordance with the needs of various areas.

Current problems which demand an immediate solution are:-

- (1) the quality of teaching staff. The majority are part-time teachers e.g. the Senior Technical High has only 20% full-time teachers. Teachers for the general subjects should have a special training at special colleges for teachers of Vocational Education.

- (2) equipment facilities.
For the greater part insufficient; improvement and supplementation is urgent.
- (3) building facilities.
A number of schools have to share accommodation with other schools so that the maintenance of furniture and equipment cannot be done in a proper way.

Report of the activities in 1958:

(1) General Section:

Collection and analysis of public opinion (department, offices, enterprises, factories, experts etc.) on good and bad conditions, shortcomings of the present Vocational Education.

- (2) Planning Section:
 - a. Participation in the preparation of the Vocational Education Act,
 - b. Participation in the preparation of the Vocational Education Act for Private Schools.
 - c. Planning and selecting objects for research which should have priority in the light of labour and financial situation.

(3) Inquiries Section:

Arrangement, dispatch and drawing up inquiries for:

- 1. a. pupils of the Junior Commercial High School (SMKP no. II, Djakarta).
- b. pupils of the School for Domestic Science, Djakarta.

The purpose of these inquiries is: setting up personal records.

- 2. a. graduates of the S.M.E.P. II Djakarta.
- b. graduates of the S.K.P. Pius Djakarta.

The purpose of these inquiries is investigating difficulties the graduates have met with during their education and when entering the community.

(4) Interview Section: direct approach of:

the Personnel Dept. and Training Dept. of Government offices, business, banks, factories employing graduates of Vocational Schools.

Objects of interviews: shortcomings of the employees in carrying out their work, in order to achieve possible improvement of the Vocational Schools taking into consideration the suggestion of the above mentioned institutions.

(5) Testing Section:

(a) Translation or working out of tests from abroad.

(b) Trying out the test at the Junior Commercial High school and School for Domestic Science in Djakarta.

Purpose: sorting selection-material for pupils who wish to enter Vocational Schools.

Tests for investigation the aptitudes of candidates for Vocational Schools.

(6) Statistics Section - collecting and arrangement and drawing up Statistics for the Dept. of Vocational Education:

1. the number of various types of schools.
2. the number of buildings.
3. the number of class-rooms.
4. the number of pupils.
5. the number of teaching staff according to their qualification.
6. the spread of Schools in the areas.

(7) Documentation Section - Collecting and setting up Documentation.

(8) Public Relation Section - Keeping up cooperation with Research Departments of other Ministries and Departments.

15. Reports

Reports are made up by all schools on:
pupils, teachers, equipment, and building facilities, finance, results of education.

These reports are sent monthly by the Principal of the Junior Techn. Sch. to the Area-Inspector and by the Principal of the Junior Techn. Sch. to the Chief-Inspectorate.

Each Inspectorate at the Central Office sends a quarterly report to the Director of the Department.

The Director makes an annual report based on the annual reports submitted by the several Inspectorates.

16. Revision and developing Vocational Education

Stimulating factors for revision of Vocational Education are:

- (1) the National Reconstruction Plan, also called the Five Year Plan.
- (2) factors indicating the dual-purpose of the curriculum:
 1. the demand for being more practical
 2. being still too academic
- (3) facts showing that the graduates of Vocational Schools are not well equipped to cope with their work. Inadequate practical training which is required for the job.
- (4) factors which make efficient application of the curricula impossible (shortage of teachers, inadequacy of equipment and building).
- (5) the development of Indonesia in the technical and commercial fields which affects the social conditions of the community.

- (6) the increased relations of Indonesia with foreign countries.
- (7) survey of foreign experts in the form of assistance regarding the Indonesian educational system (e.g. Trinton-report 1955).
- (8) findings of Indonesian educationists who have visited foreign countries.

Steps toward revision have been made long since.

Revision can be carried out incidentally or fundamentally:

- (a) Incidentally: by alterations of the curricula which meet temporary demands regarding teachers' training which produces qualified teachers.
- (b) Fundamentally: by changing the fundamentals of the educational system, based on the Fundamental Education Act.

Up to now incidental revision of the curricula and the teachers' training system has been made by the inspectorates and departments concerned.

A National Committee for Revision established by the Government has been operating for years and has finished its task recently.

Revisions in the field of business, home-making, technical education and the system of vocational teachers' training have become real facts:

(A) Business Education.

To avoid the dualistic character of the Junior Commercial High sch. and the Senior Commercial High Sch., plans are made to provide certain trends in the curricula in accordance with the developments in the business world. The S.M.E.P. is designed to become a 4 years' course: 2 years with a preparatory program and 2 years with a specific character with 2 streams.

- (1) Management
- (2) business administrations.

The S.M.E.A. is supposed to become a 4 years course after the S.M.P., 2 years preparatory course and 2 years with 3 streams:

- (1) management
- (2) business administration
- (3) cooperative work.

Provision is made for workshops for office practice, retailing, salesmanship.

(B) Home-making Education

The conception of Home Economics has been introduced in the present curriculum.

The object is:

- (1) education of girls to prepare them for their future task as mothers and to make them aware of their responsibility for the welfare of their families in the broadest sense of the word.

Workshop-training as a result of survey of the place of the family in the community is introduced in the practical training.

- (2) education of girls to develop their aptitudes in certain vocations, in accordance with their abilities to enable them to earn their own living.

(C) Technical Education

The National Committee for investigating Technical Education was established by the Prime Minister in 1957 to revise and investigate technical education on various stages and types which are run either by the Ministry of Education or by other Ministries.

A special Committee was installed by the Ministry of Education in 1958 to investigate technical Education conducted by the Dept. of Vocational Education.

Incidental revision has been made in the Senior Technical Teachers' Training.

Schemes are set up to make in-service-training of Technical teachers possible.

In the technical training the guiding principles are:

- (1) the philosophy underlying technical Education
- (2) the spiritual attitude and the abilities of the technician.

Concerning the spiritual attitude of a technician:

- (1) the technician-to-be should show appreciation for all activities in the field of material development (industrial, technical).
- (2) the technician-to-be should have the faculty for logical thinking and some feeling in analytic work.
- (3) the technician-to-be should find joy and satisfaction in technical manual work.

Concerning the abilities:

- (1) he should have the basic elementary skills.
- (2) he should have technical knowledge of the fundamental skills.
- (3) he should have the ability to plan any kind of project from the simplest to the most complex.
- (4) he should have the ability to carry out the project.
- (5) he should realise the significance of job analysis.
- (6) he should be accurate and economical in the workshop, the place of training abilities.

(D) Teacher Training

In line with the need for modern trends in Teacher Training in accordance with the Revision Scheme, three projects have been planned through the establishment of 3 Training Centres;

- one (1) for Teachers of Home Economics
- one (1) for Teachers of Business Administration
- one (1) for Teachers of Technical Education

Curricula, a part of the equipments and teaching-staff are provided for. The buildings are in construction.

It is hoped that with the aid of the I.C.A. this project will come into operation next year.

To meet the current demand for revision of training teachers of Home-Economics and Business-education an emergency measure has been taken.

A team of experts visits the different areas. For 10 days these teacher-experts give instruction in workshops to teachers in the areas.

In this way in a period of 8 months some 300 teachers will have had training.

In the light of the Revision close collaboration between the School and the Community as represented by the business world is considered urgent.

Practical work should be done in workshops, offices and enterprise.

It should be systematically provided for in the curricula.

The whole business community should realise that the Vocational Schools are also its concern.

The possibility for establishing permanent teachers training centres has full attention.

The establishment of an Academy for Training of Vocational Teachers is being taken into consideration.

(1) The Academy will be the centre of various types of Teacher training.

It will cover:

1. the training of technical teachers
2. the training of teachers for Home-making-Education

3. the training of teachers for Business-Education
4. the training of teachers of other types of Vocational subjects;

- (2) The Academy of Teachers' Training should be accommodated in a special building provided with spacious lecture-rooms suited for theoretical and practical training. Provision should be made for work-shop and laboratory practice,
- (3) the building should be equipped with a room for administration and a library.
- (4) Equipment for work-shop and laboratory practice should be complete;
- (5) the academy should have wide administrative autonomy
- (6) the study - duration is 3 years after the Senior Secondary Education: It will be a "guided" study and the lectures and practical training will be held in the morning-hours. Efficiency and development of democratic ideas will be the guiding principles. The degree of Bachelor of Vocational Ed. will be granted to the students who have successfully completed the training.
- (7) admission to the academy is open for Senior Secondary School graduates who satisfy certain requirements.
- (8) in case of shortage of Indonesian qualified teaching-staff, foreign lecturers will be required. Parallel to this, students will be sent abroad systematically after having additional preparatory training.
- (9) to the lecturers proper compensation will be granted in accordance with the University - regulations.
- (10) control will be exercised by a special Board of which the members are composed of functional persons from the educational and community circles.

- (11) with respect to future developments in the field of Vocational Education it is essential that the Academy will be administered by the Dept. of Vocational Education.
- (12) the Academy for Training Vocational Teachers should come into operation at the beginning of 1960.

17. SUGGESTIONS TO THE SEMINAR

The establishment of an institution called "Inter-Asian Association of Vocational Education" is considered desirable.

OBJECTIVES:

- (1) to maintain close cooperation between Vocational Educators, administrators and those interested in Vocational Education in Asia.
- (2) to offer possibilities for exchange of teachers, students, supervisors, administrators of Vocational Education.
- (3) to bring about assistance to less developed countries in the form of equipment (School-equipment, text-book material, accessories, machines).
- (4) to publish an "Asian-Vocational Journal".

18. STATISTICS

See appendix

STATISTICS DEPT. OF VOCATIONAL EDUCATION
1957/1958

REMARKS FOR STATISTICS

No distinction is made between male and female Students for the B.I and B.II Course. In this list all Students are considered male.

S.K. = Schools for training in college industries
S.T. = Junior Technical School
S.T.M. = Senior Technical School
S.G.P.T. = Teacher Training College for Technical Education
S.K.P. = School for Domestic Science
S.G.K.P. = Training College for Teachers of Home Economics
K.G.P.G.K.P. = Correspondence Lessons for Teachers of Home Economics
K.D.P. = Primary Business Courses
S.M.E.P. = Junior Commercial High School
S.M.E.A. = Senior Commercial High School
K.P.A. = School for Civil Administration
K.P.A.A. = Senior School for Civil Administration
S.P.K. = School for Social Workers
S.M.K.A. = School for Law Officers

Subs. = Subsidize
Supp. = Supported
Priv. = Private
f.t. = full time
p.t. = part time

X) No Examination
XX) Report still wanting

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No.	Types of Schools	Number of Schools				
		Gov.	Subs.	Supp.	Priv.	Total
I. Technical Education						
1.	S. K. 2 th.	222	5	-	-	227
2.	S. T.	226	7	-	-	233
3.	S. T. M.	18	1	1	20	40
4.	S. G. P. T.	9	-	-	-	9
II. Home making Education						
5.	S. K. P. 2 th.	66	16	22	45	149
6.	S. K. P. 4 th.	97	26	43	54	220
7.	S. G. K. P.	9	X)	X)	23	32
8.	Kursus TPGKP.	1	-	-	-	1
III. Business Education						
9.	K. D. P. 2 th.	18	-	-	-	18
10.	S. M. B. P.	126	-	-	-	126
11.	S. M. B. A.	28	-	-	-	28
IV. Other Vocational Education						
12.	K. P. A.	30	-	-	-	30
13.	K. P. A. A.	4	-	-	-	4
14.	S. P. K.	2	1	-	3	6
15.	S. M. K. A.	3	-	-	-	3
V. Teacher Training						
16.	B. I. Course in Economics	7	-	-	-	7
17.	B. I. Commerce	6	-	-	-	6
18.	B. I. Business	-	-	-	-	-
19.	B. I. Technical Science	4	-	-	-	4
20.	B. I. Public Administration	-	-	-	-	-
21.	B. I. Mechanical Engineering	1	-	-	-	1
22.	B. I. Physics	1	-	-	-	1
23.	B. I. Mathematics	3	-	-	-	3
24.	B. I. Chemistry	1	-	-	-	1
25.	B. I. P. K. P. (Home Economics)	1	-	-	-	1
26.	B. I. Drawing	1	-	-	-	1
27.	B. I. Union Language	2	-	-	-	2
28.	B. I. English	3	-	-	-	3
29.	B. I. Natural Science	1	-	-	-	1
30.	B. II. Mathematics	1	-	-	-	1
31.	B. II. Chemistry	1	-	-	-	1
32.	B. I. Administration	1	-	-	-	1
T O T A L		893	56	66	145	1160

Number of classes				
Gov.	Subs.	Supp.	Priv.	Total
865	10	-	-	875
1803	36	-	-	1839
183	4	7	148	342
111	-	-	-	111
122	25	46	47	240
635	148	213	166	1162
72	X)	X)	93	165
XX)	-	-	-	-
69	-	-	-	69
812	-	-	-	812
203	-	-	-	203
X)	-	-	-	X)
X)	-	-	-	-
7	8	-	X)	17
22	-	-	-	22
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
4906	281	266	454	5857

No.	Types of Schools	Number of pupils			
		Gov.		Subs.	
		m	f	m	f
I. Technical Education					
1.	S.K. 2 th.	20524	--	231	--
2.	S.T.	41258	--	827	--
3.	S.T.M.	3665	--	106	--
4.	S.G.P.T.	1345	--	--	--
II. Home making Education					
5.	S.K.P. 2 th.	--	2771	--	661
6.	S.K.P. 4 th.	--	14647	--	3915
7.	S.G.K.P.	--	1795	--	--
8.	Kursus TPOKP.	--	--	--	--
III. Business Education					
9.	K.D.P. 2 th.	1720	107	--	--
10.	S.M.E.P.	22806	3872	--	--
11.	S.M.B.A.	5646	989	--	--
IV. Other Vocational Education					
12.	K.P.A.	2271	--	--	--
13.	K.P.A.A	X)	--	--	--
14.	S.P.K.	194	39	117	101
15.	S.M.K.A.	409	81	--	--
V. Teacher Training					
16.	B. I. Course in Economics	454	--	--	--
17.	B. I. Commerce	433	--	--	--
18.	B. I. Business	--	--	--	--
19.	B. I. Technical Science	246	--	--	--
20.	B. I. Public Administration	--	--	--	--
21.	B. I. Mechanical Engineering	53	--	--	--
22.	B. I. Physics	50	--	--	--
23.	B. I. Mathematics	113	--	--	--
24.	B. I. Chemistry	71	--	--	--
25.	B. I. P.K.P. (Home Economics)	--	56	--	--
26.	B. I. Drawing	35	--	--	--
27.	B. I. Indonesian Language	125	--	--	--
28.	B. I. English	178	--	--	--
29.	B. I. Natural Science	43	--	--	--
30.	B. II. Mathematics	10	--	--	--
31.	B. II. Chemistry	22	--	--	--
32.	B. I. Administration	50	--	--	--
T O T A L		101721	24267	1281	4677

Number of pupils					
Supp.		Private		Total	
m	f	m	f	m	f
II	II	II	II	20755	II
II	II	II	II	42085	II
225	II	445	II	4441	II
II	II	II	II	1345	II
II	1169	II	1292	II	5893
II	5412	II	4228	II	28202
II	II	II	2644	II	4349
II	II	II	II	II	II
II	II	II	II	1720	107
II	II	II	II	22806	3872
II	II	II	II	5646	989
II	II	II	II	2271	II
II	II	II	II	311	140
II	II	X	II	409	81
II	II	II	II	454	X
II	II	II	II	433	II
II	II	II	II	246	II
II	II	II	II	53	II
II	II	II	II	50	II
II	II	II	II	113	II
II	II	II	II	71	II
II	II	II	II	II	56
II	II	II	II	35	II
II	II	II	II	126	II
II	II	II	II	178	II
II	II	II	II	43	II
II	II	II	II	10	II
II	II	II	II	22	II
II	II	II	II	50	II
225	6681	445	8164	103272	43689

No.	Types of Schools	Number of Teachers			
		Gov.		Subs.	
		ft.	pt.	ft.	pt.
I. Technical Education					
1.	S.K. 2 th.	862	1056	47	11
2.	S.T.	3291	831	22	11
3.	S.T.M.	161	439	9	11
4.	S.G.P.T.	106	71	--	11
II. Home making Education					
5.	S.K.P. 2 th.	--	--	11	11
6.	S.K.P. 4 th.	1061	346	248	39
7.	S.G.K.P.	92	42	--	11
8.	Kursus TPCKP.	XX)	--	11	11
III. Business Education					
9.	K.D.P. 2 th.	16	138	11	11
10.	S.M.F.P.	1178	188	11	11
11.	S.M.B.A.	203	350	11	11
IV. Other Vocational Education					
12.	K.P.A.	52	80	11	11
13.	K.P.A.A.	XX)	--	11	11
14.	S.P.K.	18	21	9	23
15.	S.M.K.A.	11	70	11	11
V. Teacher Training					
16.	B. I. Course in Economics	15	96	11	11
17.	B. I. Commerce	8	67	11	11
18.	B. I. Business	--	--	11	11
19.	B. I. Technical Science	5	49	11	11
20.	B. I. Public Administration	--	--	11	11
21.	B. I. Mechanical Engineering	--	2	11	11
22.	B. I. Physics	1	4	11	11
23.	B. I. Mathematics	4	14	11	11
24.	B. I. Chemistry	12	12	11	11
25.	B. I. P.K.P. (Home Economics)	10	6	11	11
26.	B. I. Drawing	1	6	11	11
27.	B. I. Indon. Language	11	15	11	11
28.	B. I. English	8	6	11	11
29.	B. I. Natural Science	11	9	11	11
30.	B. II. Mathematics	11	2	11	11
31.	B. II. Chemistry	11	2	11	11
32.	B. I. Administration	1	19	11	11
T O T A L		7114	8941	338	62

Number of Teachers					
Supp.		Priv.		Total	
ft.	pt.	ft.	pt.	ft.	pt.
				909	1056
				3515	831
2	24	12	30	184	493
				106	71
319	183	336	174	1963	742
		98	167	190	209
				16	138
				1178	188
				203	350
				52	80
				27	44
				11	70
				15	96
				8	67
				5	49
					2
				1	4
				4	14
				12	12
				10	6
					6
					15
				8	6
					9
					2
					2
				1	19
321	207	445	371	8215	4581

No.	Types of Schools	Examination				Total
		Gov.	Subs.	Stpp.	Priv.	
I. Technical Education						
1.	S. K. 2 th.	X)	||	||	||	
2.	S. T.	9228	||||	||||	||||	9228
3.	S. T. M.	1503	||||	||||	||||	1503
4.	S. G. P. T.	314	||||	||||	||||	314
II. Home making Education						
5.	S. K. P. 2 th.	X)	||	||	||	
6.	S. K. P. 4 th.	XX)	||||	||||	||||	
7.	S. G. K. P.	XX)	||||	||||	||||	
8.	Kirsus TPOKP.	XX)	||||	||||	||||	
III. Business Education						
9.	K. D. P. 2 th.	XX)	||	||	||	
10.	S. M. E. P.	XX)	||	||	||	
11.	S. M. E. A.	XX)	||	||	||	
IV. Other Vocational Education						
12.	K. P. A.	XX)	||	||	||	
13.	K. P. A. A.	XX)	||||	||||	||||	
14.	S. P. K.	66	50	||||	||||	116
15.	S. M. K. A.	245	||	||||	||||	245
V. Teacher Training						
16.	B. I. Course in Economics	306	||	||	||	306
17.	B. I. Commerce	263	||||	||||	||||	263
18.	B. I. Business	..	||||	||||	||||	..
19.	B. I. Technical Science	89	||||	||||	||||	89
20.	B. I. Public Administration	36	||||	||||	||||	36
21.	B. I. Mechanical Engineering	..	||||	||||	||||	..
22.	B. I. Physics	24	||||	||||	||||	24
23.	B. I. Mathematics	162	||||	||||	||||	162
24.	B. I. Chemistry	47	||||	||||	||||	47
25.	B. I. P. K. P. (Home Economics)	38	||||	||||	||||	38
26.	B. I. Drawing	18	||||	||||	||||	18
27.	B. I. Iyloñ Language	24	||||	||||	||||	24
28.	B. I. English	38	||||	||||	||||	38
29.	B. I. Natural Science	4	||||	||||	||||	4
30.	B. II. Mathematics
31.	B. II. Chemistry
32.	B. I. Administration	63				63
T O T A L		12465	50	12515

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- one (1) for Teachers of Business Administration
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18. Statistics

See appendix

STATISTICS DEPT. OF VOCATIONAL EDUCATION
1957/1958

REMARKS FOR STATISTICS

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Supp. = Supported
Priv. = Private
f.t. = full time
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XX) Report still wanting

Appendix:

1. A Short History of The Development of Vocational and Technical Education in Indonesia

Introduction:

To get a clear and good picture of the development of the vocational and technical education in Indonesia we have to recall the three periods in our country:

- (1) The Dutch colonial time; this lasted 350 years.
- (2) The Japanese occupation; this lasted 3 1/2 year.
- (3) The Republic of Indonesia, up till now.

In comparing these three periods we will see, that the growth of schools in the third period is incredibly great, for the Dutch had only set up schools necessary for their needs. I am now at the point to give you a brief outline of the development of the vocational and technical education in my country.

(A) Technical Education

The Dutch just began to think of educating the Native people in 1902 (bear in mind their coming to Indonesia in the 17th century; Indonesia was then called Netherland East Indies).

1902 - 1931: There were 5 technical schools in Indonesia. These schools were 3 or 4 years' courses, with the following division: building-construction, machine, waterworks-construction, electricity and mining. Only the big cities, as you will see, were lucky to have these schools:

- (a) In Djakarta was the Queen Wilhelmina School (K.W.S.)
- (b) In surabaja we had the Queen Emma School (K.E.S.)
- (c) In Djokjakarta was established the Princess Juliana School (P.J.S.)

(d) In Bandung was the Technical School (T.S.) and

(e) also in Semarang we had a Technical School (T.S.)

In 1937 two of these five technical schools were closed, the one in Bandung and the other one in Djokjakarta.

Beside these technical schools we had the so-called "Ambachts-leergangen" (Courses of 2 or 2 + 1 year to train skilled laborers) divided into 2 sections: the European (from 1835 private and from 1912 public) and the Native section (from 1903). The difference between these 2 sections was in fact only a matter of different salary-schedule we had in all kinds of education in the Dutch colonial time. The European section was, in all kinds of education more profitable than the Native section concerning salary-schedule.

Native section:- The Department of Instruction set up in 1903 three of these courses in Djakarta, Semarang and Surabaya; from 1914 to 1920 these schools came under the supervision of the Department of Agriculture, Industry and Commerce and this Department set up more courses in the smaller cities; these courses were 2 years' courses and the divisions were: iron, electricity, plating and furniture. Courses, which were disappointing, were closed in 1934 and the teaching staff of these courses became officials of the Department of Economic Affairs to be instructors and leading-men of small industries in villages.

European section:- Set up in 1912 by the Department of Instruction, taken over from private institutions and divided into the following divisions: building-construction, machine and motor.

In 1931 these courses were changed into Public Craft-schools with the following divisions: machine, building-construction and electricity. The duration of these courses was still 3 years, but emphasis was put upon practical training, for the students were educated to become junior grade supervisors.

In 1941 was set up a senior technical school in Surabaya, a 4 years' course with the following divisions: machine, building-construction, electricity and chemistry technology. Students, coming from the Junior Technical Schools or the Junior

High Schools, might enter this school.

The Japanese Occupation:-

In 1942 only the 2 + 1 year courses were re-opened and the students might enter these courses without passing an entrance examination.

In 1943 the technical schools (4 years in Djakarta, Djokjakarta and Surabaja) were re-opened with the following divisions: building-construction, machine, electricity and mining. The students could enroll after having passed an entrance exam.

In 1944 were set up senior technical schools in Bandung, Djokjakarta and Surabaja (3 years). Students for these schools had to pass the Junior Technical Schools or the Junior High School.

The Republic of Indonesia:-

After Indonesia got her independence in 1945, during the period 1945 to 1948, our technical schools had to produce all kinds of arms they could make, as a consequence of our struggle for freedom.

In 1948 the Inspectorate of Technical Education was established and after that time Technical Education had the greatest attention possible. Because of the war and especially because of our struggle for independence most of the school-buildings and equipment were entirely or partly destroyed.

In 1949 the first task of the Inspectorate was to build up again these buildings and equipment. A new kind of school was set up, the Technical Teacher Training Course or K.G.S. T.P., where the students were trained to become teachers of the Junior Technical School. The number of Junior Technical Schools increased very fast.

In 1955 we had the following technical schools:

- (a) Senior Technical Schools (S.T.M.) - a 4 years course

- (b) Junior Technical School (S.T.) - a 4 years' course
- (c) Junior Technical Schools (S.T.P.) - a 2 years' course
- (d) Public Craft Schools (K.K.N.) - a 1 or 2 years' course
- (e) Technical Teacher Training School (S.G.P.T.) - training teachers of S.T.
- (f) Technical Teacher Training Course (K.G.S.T.P.) - training teachers of S.T.P.
- (g) Technical Teacher Training Course (K.G.S.T.) - training teachers of S.T.

At present we have the following technical schools:

- (a) Senior Technical School (S.T.M.) - a 3 years' course
- (b) Junior Technical School (S.T.) - a 3 years' course
- (c) Craft School (S.K.) - a 1 or 2 years' course
- (d) Technical Teacher Training School (S.G.P.T.) - training teachers of S.T.
- (e) Technical Teacher Training Course (K.G.S.T.) - training teachers of S.T.

(B) Business Education

To this education the Dutch had not paid much attention. In the Dutch colonial time there were only 16 schools for all of Indonesia, divided as follows:

- (a) The Prince Henry School (P.H.S.), one in number, a 5 years' course after the elementary school. Students, having passed this school, could study further on the

faculty of business education in Rotterdam (Netherland).

(b) The Secondary Commercial School (M.H.S.), 3 in number, a 2 years' course after the Junior High. This was a terminal education and the students became specialists in their profession.

(c) The Middle-class Commercial School (Middenstands Handelsschool), 2 in number, a 2 years' course after the elementary school. Students became employes in the middle-class commerce.

(d) Lower Commercial School (Klein Handelsschool), 10 in number, a 2 years' course after the elementary school and these schools had an uncertain specialization.

Beside this small number of schools there were private courses in type-writing, shorthand-writing, lower and higher book-keeping, English correspondence, etc. These courses enabled the students to get a practical certificate.

The Japanese Occupation:-

During the Japanese occupation all these schools were closed and there remained only the private courses.

The Republic of Indonesia:-

With the establishing of the Republic of Indonesia, the Government considered the commercial/business education as a very important type of education and so in 1947 there were set up a Commercial School (a 3 years' course) and a Secondary Business School (a 3 years' course). These 2 kinds of schools became in 1951 the Junior Commercial School (S.M.E.P.) and the Senior Commercial School (S.M.E.A.)

Beside the S.M.E.P. we have the Junior Commercial Course (K.D.P.), a 3 years' course for employes, 20 in number, and on the same level as the S.M.E.A. are the Senior Commercial Courses. Students, having passed the Junior High and employed in business circles, or those who have passed the Junior Commercial Course can enter these senior courses.

(C) Home-making education

In 1920 the Dutch set up a vocational school especially for girls (Huishoudschool); this name was changed into Lower Industrial School (Lagere Nijverheidsschool) in 1935 and was a 2 years' course after the primary school.

In 1928 was established a Secondary Home-making School, a public teacher training school, which educated girl-students to become teachers of Home-making Schools; this school was a 3 years' course. Students, having passed the Junior High, could enter this school. The number was only one and established in Djakarta.

An inspectorate of Home-making Education was established in the Department of Instruction, later on changed into Inspectorate of Home-economics.

During the Japanese Occupation the name "Lower Industrial School" had to be changed into Indonesian; this kind of school got the name School for Home-making Education (S.K.P.) and the Teacher Training School became Teacher Training School for Home-making Education (S.G.K.P.).

The Republic of Indonesia:-

With the establishment of the Republic of Indonesia both kinds of schools have kept their names up till now. They were in the beginning still under the Supervision of the Inspectorate of Home-making Education till 1958. Then this Inspectorate became Division of Home-making Education, a part of the Department of Vocational Education.

(D) Other types of vocational schools

After our Independence a new Division was established and this Division had the supervision of other types of vocational schools except the previously mentioned schools.

Schools or Courses under the supervision of this Division at present are:

(1) Schools

- (a) School for Law Officers (S.M.K.A.), a three years' course after the Junior High. This school can also be considered as an upgrading-course for officials of the Ministry of Justice. These schools, 3 in number, are established in: Medan, for the Western part of the Country, Malang, for Central Indonesia and Makasar, for Indonesia's Eastern part.
- (b) School for Social Workers (S.P.K.), a three years' course, later on changed into a 4 years' course. These schools are established in 1946 in Surakarta, in 1951 in Semarang - a private school subsidized by the Government - and in 1955 in Djakarta. Students having passed the Junior High, may enter these schools.
- (c) School for Hotel Management (S.K.Ph.), a new school, to be opened in August 1959 in Bandung. This school is a 2 years' course after the Junior High. Divisions of this school are service culinary and secretarial work.

(2) Courses

- (a) Course for Lower Civil Administration (K.P.A.), a 3 years' course after the primary school and open for adults, officials with a primary school-certificate, to improve their administrative capacity (it can thus be considered as an upgrading course for administrative personnel). The number of these courses is 45 and the intention is to open such courses in every district's capital.
- (b) Course for Higher Civil Administration (K.P.A.A.), a 3 years' course after the Junior High or after having a K.P.A. - certificate, 7 in number and the intention is to set up such courses in every province.

- (o) Course for Skilled Cooperative Trainees (K.K.K.), a one month course, either practical or theoretical. The first course was intended for supervisors of the Ministry of Education and was held in 1958.

(E) Teacher Training

In this kind of education there were also two sections; a European and a Native section. As previously mentioned, the difference between the two sections, was just the same.

(1) European Section

There were the so-called Normal Schools, a 2 years' course after the Junior High, but with a special good mark for the Dutch language, 3 in number, one in Djakarta, one in Semarang and one in Surabaya. Though Native Girls or boys might enter these schools, there were only few Native students on these schools. Having a Normal School certificate, students became qualified teachers for elementary schools. A higher Certificate could be obtained on the Higher Teacher Training Course, a 2 years' course after the Normal School, 3 in number. With this Higher Certificate students still were qualified teachers for elementary schools.

These Normal Schools were changed into Elementary Teacher Training School and Higher Elementary Teacher Training School with a European and a Native Section on it. Teachers with a Native Section Certificate might also enter these schools.

(2) Native Section

After a little time the Dutch paid attention to educate the Native people to become teachers and so were set up a Native Teacher Training School for girls in Salatiga and one for the boys in Djakarta. Both training schools were 4 years' courses after the primary school.

Beside these schools there were Lower Grade

Schools, called Normal School for Native Teachers, a 2 years' course after the so-called "village-school", a kind of school less than the public European primary school and even lower than the primary school for Native children. Students, having passed these schools, became junior grade teachers, mostly they had to teach the dialect of that region and drawing in the junior grades, in the common primary schools and mostly they were destined for the "village-school".

Above these schools was a Higher Teacher Training School (H.K.S.), a years' course after the Teacher Training School. These teachers were usually qualified teachers for the Native elementary schools. At about 1930 other kinds of training schools were established; the Native Teacher Training School (N.T.K.) and the Chinese Teacher Training School (C.T.K.), for at that time there were Native and Chinese elementary schools. Students, having these certificate, might enter the Higher Elementary Teacher Training School and if they liked to obtain the European Certificate on the school, they had to pass a special examination in Dutch and the other foreign languages as French and German, plus mathematics.

(3) Japanese Occupation

The first 2 schools for teacher training were opened again in Djokjakarta, co-education was prohibited. So there was one school especially for girls (S.G.P.) and one for the boys (S.G.L.). A year after the re-opening of these schools another teacher training school was established, called the Senior Teacher Training School (S.G.M.T.), where students could become teachers of secondary schools. To be able to enter this school - only one in Djokjakarta - they had to have a Junior High or a Senior High certificate.

(4) The Republic of Indonesia

The education of teachers became co-educational and we had at that time the Junior Teacher Training

School (S.G.B.) and the Senior Teacher Training School (S.G.A.), both certificates were intended for elementary school-teaching, but while the shortage of teachers on secondary schools was very high, when the Dutch had to stop teaching in our schools, we were compelled to allow the teachers with a S.G.A.-certificate to teach in the Junior High as an emergency measure. Then the so-called B.I Courses were established, a 2 years' course after the Senior High or the Senior Teacher Training School.

These Courses were special courses for special subjects, as: English language, Geography, History, etc. After the establishing of these courses, teachers with a Senior Teacher Training certificate are not allowed any more to teach on secondary schools. Gradually the necessity of training teachers for vocational schools was an important task for teacher training and at present we have these special teacher training schools as already mentioned in Technical, business and Home-making Education.

2. Statistics

(A) Total population in Indonesia

The total population at present is: 86,8 million.

(B) The number of pupils of the various educations

(1) Primary Education

Public Elementary Schools:	Grade 1 :	1,837,916
	2 :	1,365,593
	3 :	1,110,410
	4 :	884,116
	5 :	700,819
	6 :	587,737
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	Total :	6,486,591

(2) Secondary Education (Junior level)

(a) Junior High Schools: Grade I : 63,929
II : 48,468
IIIA : 18,348 (Literature section)
IIIB : 17,989 (Mathematics section)

Total : 148,734

(b) Junior Teacher Training School: 75,074

Total : 223,808

(3) Secondary Education (Senior level)

(a) Senior High School: 36,933
(b) Higher Teacher Training School: 8,920
(c) Special Higher Teacher Training: 2,162 (1 year after the Senior High)

Total : 48,015

Note: From these schools are no specifications available.

(4) Vocational and Technical Education

(a) Junior level: Craft School : 20,755
Junior Technical School: 42,085
Primary Business Course: 1,827
Junior Commercial School 26,678
School for Domestic Science (2y) : 5,893
School for Domestic Science (4y) : 28,202
Junior School for Civil Administer : 2,271

Total : 127,711

(b) Senior level;

Senior Technical School	:	4,441
Technical Teacher Training School	:	1,345
Senior Commercial School	:	6,635
Home-making Teacher Training School	:	4,349
School for Law Officers	:	490
School for Social Workers	:	451
		<hr/>
Total	:	17,711

(c) Semi-academic level;

General Education B.I	:	3,546
Vocational Education B.I	:	1,851
General Education B.II	:	45
Vocational Education B.II	:	32
		<hr/>
Total	:	5,474

3. Apprenticeship in Indonesia

If we like to talk about apprenticeship in Indonesia, it is necessary to consider several periods in our country.

(A) Ancient times

Apprenticeship was already wellknown since ancient

times in Indonesia. The art of plaiting had its origin in Indonesia itself. Every expert in plaiting was willing to teach everybody - especially the youth - who liked to be acquainted with this art (craft). On the other hand the pupils concerned would serve with devotion.

(B) From the 4th to the 15th century

Indonesian handicraft increased in this period because of the coming of the Hindus (Indian people) in our country. New crafts were learned. Wood-carving as well as silver-carving became very popular in those times.

Tools or instruments, necessary to carve, were very simple. The spread of these new arts was carried out by gathering the youth, led by an expert. They would work together, learning and teaching the art and in this way the production would increase. If the apprentice was already clever himself, he was free to leave and to begin on his own.

(C) From the 15th to the 17th century

The growth of the handicraft developed continuously. In this period the Indonesian people got acquainted with stone-carving and the production of instruments for horticulture (plantation). This period was characterized by the great attentiveness of the youth, who developed these arts from generation to generation.

(D) From the 17th to the 20th century

Western influence were remarkable in this period. Because of these influences the Indonesian people improved not only the instruments - then already known - but they modernized also their techniques and the way of thinking.

Up till now apprenticeship is done by the Indonesian people's initiative itself without interference of the Government.

(E) Aspects of apprenticeship

- (1) Some expert, having an enterprise of his own, will accept young people, who wish to be trained practically in a certain branch. While trained these young people will help to increase the production.
- (2) Being well-trained they are free to leave and to begin on their own.
- (3) While in training they don't get any wages, but they receive some pocket-money.
- (4) No theoretical knowledge is taught.
- (5) The Ministry of Education does not interfere.
- (6) At this moment we have the following apprenticeship:
 - (a) The production of horticulture-instruments from metal.
 - (b) Wood - and silver - carving.
 - (c) Welding techniques.
 - (d) Motor mechanics.
 - (e) Motor service.
 - (f) Bicycle and motorcycle repairing.
 - (g) Electrical installation.
 - (h) Plaiting.
 - (i) Ship-building.
 - (j) Furniture making.
 - (k) Building construction.
 - (l) Wood- and metal-craft.

(m) Printing.

(n) Leather-work (shoe-, bag-making, etc.).

4. Financial Data

(1) Cost to the pupil

<u>Kind of Education; Personnel</u>	<u>Operating goods</u>	<u>Capital goods</u>	<u>Total Students</u>
(a) Home-making Teacher Training School	Rp. 280,200	Rp. 2,200,000	1,705
(b) School for Domestic Science ($\frac{1}{2}$ years)	9,919,400	2,885,000	14,647
(c) School for Domestic Science (2 years)	4,119,900	1,153,300	2,771
	Rp. 16,425,900	Rp. 4,318,500	Rp. 2,200,000 19,123

Total amount:
22,944,400

Cost to the pupil:

Rp. 22,944,400 : 19,123 = Rp. 1,200 a year
or $\frac{1}{12}$ Rp. 100 a month.

(d) Craft School	Rp. 38,038,600	Rp. 4,833,100	Rp. 8,738,000	20,524
(e) Junior Technical School	16,515,600	8,904,200		41,258
(f) Senior Technical School	9,190,900	4,109,800		3,665
(g) Technical Teacher Training College	1,650,800	2,184,400		802

Rp. 65,395,900 Rp. 20,028,500 Rp. 8,738,000 66,249

Total amount;
Rp. 94,162,400

Cost to the pupil:
Rp. 94,162,400 : 66,249 = Rp. 1,421,40 a year
or ± Rp. 118,45 a month.

(h) Junior Commercial School	Rp. 24,909,600	Rp. 2,460,000	Rp. 2,000,000	26,678
(i) Sen. Comm. School	9,772,600	940,000		6,635
(j) Primary Business Course	2,288,100	348,500		1,827

Rp. 36,970,300 Rp. 3,748,500 Rp. 2,000,000 35,140

Total amount:
Rp. 42,718,800

Cost to the pupil:
Rp. 42,718,800 : 35,140 = Rp. 1,215,60 a year or
Rp. 101,30 a month

(2) National Budget of the Indonesian Republic:
in 1959 = Rp. 28,969,000,000.

Budget of the Ministry of Education:
in 1959 = Rp. 1,692,000,000 =
5.84% of the National Budget.

Budget spent for Vocational and Technical Education:
Rp. 248,299,400 =
0.85% of the National Budget.

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