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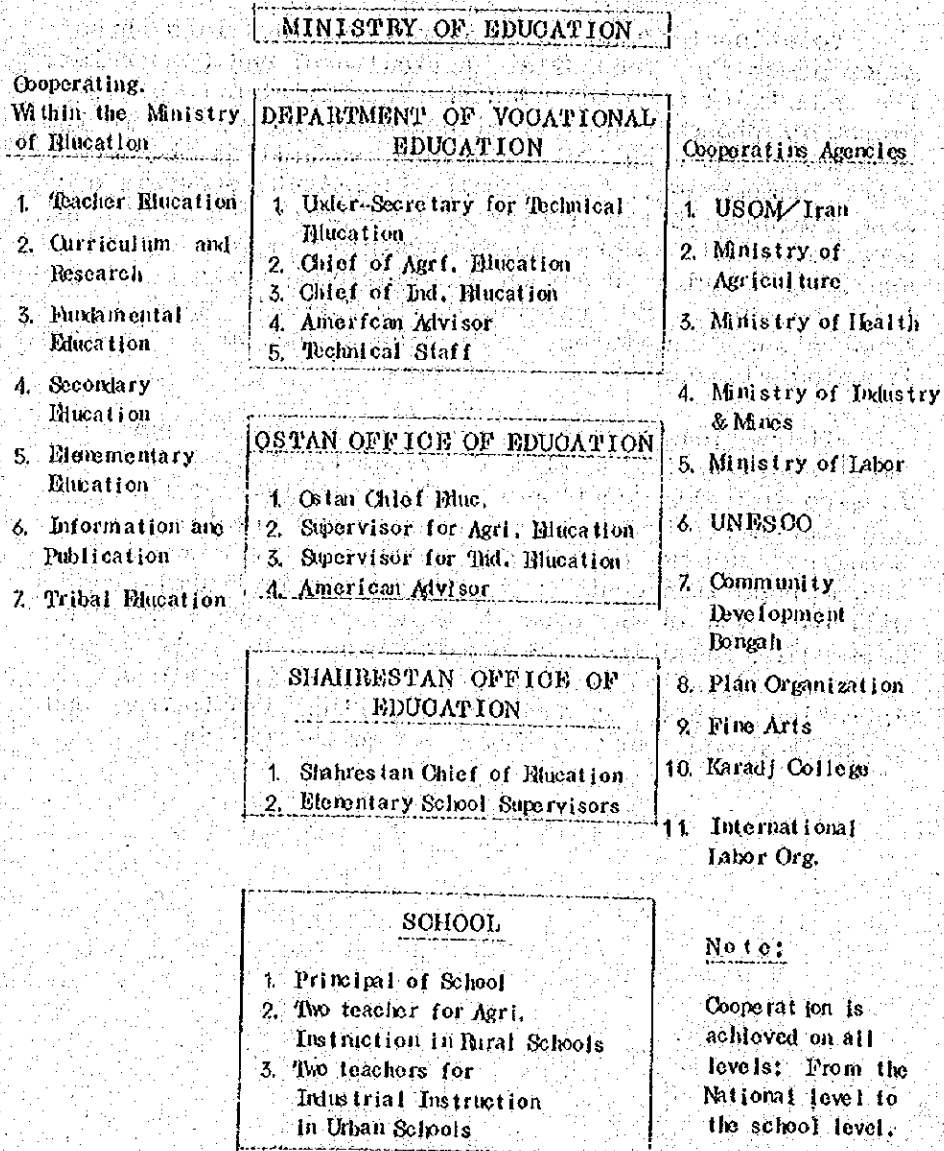
## 1. Technical and Vocational Education

### (A) Preface

Vocational Education in Iran is divided into three major areas i.e. Industrial, Agricultural and Commercial. The Industrial area includes the Industrial arts or exploratory phase of industrial education as well as in the Elementary and First Cycle schools, as well as the Vocational Homemaking. The Technical Institute programs are also included in the industrial section of the vocational program as well as the teacher training in the industrial area. Industrial education also includes trade and industrial education and training in the Worker's Schools, Honarestans, Institutes, adult classes and apprenticeship training classes.

The agricultural area includes exploratory agricultural activity in the Elementary and First Cycle Schools. It also includes vocational agriculture in secondary schools, Agricultural Normal Schools and Practical Farm Schools. In some of the village areas, far removed from the metropolitan centers, vocational agricultural program will be given in the Elementary and First Cycle Schools. Commercial Education includes training in all phases of business education from the typist level to business administration. It offers training opportunities to boys and girls, men and women in these respective fields.

Chart showing the organization and cooperation of Education:



Note:  
Cooperation is achieved on all levels: From the National level to the school level.

## (B) Introduction

The primary purpose of the industrial education program is to provide opportunities, through the Ministry of Education, for Iranians to develop technical skills necessary for the industrial development of Iran.

The need for skilled and semi-skilled workers is urgent and is growing daily. Iran is one of the last great "World Markets" and every nation is interested in supplying her need for equipment, machinery and technical knowledge. Automobiles, trucks, tractors, trains, airplanes, radio, television, telephones, refrigerators, farm equipment, manufacturing equipment and other modern devices are appearing in great quantities in Iran. There are growing demands for heat, electricity, plumbing, sewers, water systems, highway systems, better buildings and a greater quantity and higher quality of the world's consumer goods.

To meet the objectives of supplying teachers, engineers, foremen, craftsmen, skilled and semi-skilled labor to meet this demand the Division of Vocational Education has established certain activities. They are: a program of general industrial arts education in all of the nation's elementary and first cycle schools; a program of industrial education in selected Secondary Schools according to area needs; a program of industrial education for out-of-school youth and other adults in Trade Preparatory Training, retraining or up-grading training; a program of industrial education at the institute level for shop managers, foremen, and engineers; a program for girls and women in selected occupations; a dynamic program of industrial teacher training, at the Master's Degree level, to supply trained personnel to carry out the planned objectives.

One of the newer developments in the Industrial Education Division is the program for training girls and women in homemaking activities as well as in business education skills. Training in cosmetology is being given now. Additional courses in receptionist training and telephone operators are being planned. Special classes for restaurant and cafeteria workers are also being planned.

(C) Resume of Past Activities to Date

Since 1953 the Industrial Education activity of the Ministry of Education has:

Provided in-service education to 1,165 teachers through special courses, conferences and workshops established at the National and Ostan levels; Pro-service education for 125 teachers through special one-year courses; in-service education for 30 supervisors and administrators.

Developed and established a program of industrial arts education for the 5th and 6th grades of the urban elementary schools.

Provided general industrial education for 42,000 students.

Revised the curricula of the Vocational Trade and Industrial Schools.

Provided vocational trade instruction for 9,000 students.

Developed a vocational teacher program as the complete program at the Tehran Institute of Technology.

Developed, published and distributed 20,000 industrial art texts for the 5th and 6th grades of the urban elementary schools.

Developed, printed and distributed 250 copies each of four handbooks for trade and industrial teachers.

Established field supervision for the industrial education program at the Ostan level.

Constructed, remodeled, repaired and equipped a total of 220 Industrial Schools or shops for general industrial education in elementary schools.

Completed 80 percent of the total buildings at the Tehran Institute of Technology.

Opened and equipped 10 new trade schools.

Began construction on 7 additional trade schools and honarestans.

Developed the concept of a family of technical institutes. Arrangements are being made, now, for financing, buildings and equipment. An engineering firm is currently working on it.

Completed contract negotiations to build a 2000 bay student vocational school and a 500 day student agricultural school near Tehran. These are to be demonstration schools with reference to organization, administration, instruction, buildings and equipment.

Developed a program for providing textbooks and instructional material.

Established a department in this area.

Organized a comprehensive vocational education staff at the national level with clearly assigned responsibilities.

Began the revision of the accounting system in the Vocational Division.

Began the development of a new concept in budget preparation and management.

Took the initial steps in providing upgrading training for the headquarters staff in the Vocational Division. A course in supervisory training will be the first offered.

Began the development of on-the-job training for vocational teachers. Began a program of vocational education for girl's and women across the nation.

#### (D) Future Plans

To be successful a program of study be made, not only for the immediate present, but for a definite number of years in the future. This provides a measurement of progress as well as furnishing the basis for a realistic budget. Teachers may be trained, equipment purchased, land and buildings purchased and constructed on the basis of

this type of planning.

The Division of Vocational Education plans to:

Provide pre-service education for 750 industrial arts teachers by 1965 by training 150 teachers each year.

Provide pre-service education for 800 Trade teachers by 1965, 100 in 1961, 150 in 1962, 200 in 1963, 250 in 1964, and 300 in 1965.

Provide in-service education for 65 instructors at the Tehran Institute of Technology. 20 will receive specialized training instruction in 1959, 30 in 1960 and 15 in 1961.

Establish pre-service training for 100 supervisors in Trade and Industrial Education by 1965 in the Tehran Institute of Technology. Some courses will be given in Shiraz, 25 in 1963, in 1964, 40 in 1965. 30 supervisors will receive in-service training at the Tehran Institute of Technology. 10 in 1963, 10 in 1964 and 10 in 1960.

Provide in-service education of 50 industrial education administrators will be done in Tehran, Shiraz and Isfahan.

The curricula of the regular elementary and first cycle schools are under study and revision to further develop the concept of integration of shop work and hand work in the academic program. This should be in full operation by 1962.

The curriculum of the vocational schools is being revised and will be completed by 1962.

The newly approved curriculum of the Tehran Institute of Technology for vocational teacher training will go into operation in 1961.

Eight textbooks will be published in 1960 and 9 will be produced in 1962. Approximately 100,000 copies will be distributed by 1965.



Another major project of the Vocational Division of the Ministry of Education is the actual development of the Polytechniques. This is a family of institutes built around the principle of practical engineering.

<u>Institutes</u>	<u>Estimated Enrollments</u>	
	<u>1960</u>	<u>1965</u>
Textile Engineering	50	200
	<u>1961</u>	<u>1965</u>
Mechanical Engineering	15	100
Building Trades Engineering	25	100
Electrical Engineering	25	100
Chemical Engineering	15	100
Electro-Techniques	40	100
Mining	40	100

It is planned to finish construction on five honarestans by 1960. Also planned to begin construction on 12 new honarestans in 1960 and complete them in 1961. There will be an over-all total of 52 new and/or remodeled honarestans and trade schools in Iran by 1965.

#### (E) Summary

The vocational education plan is moving ahead on five broad fronts. The major weakness now is the lack of well trained vocational teachers. One of the fronts is a studied, comprehensive and intensive program of vocational teacher training.

Another great weaknesses in Iran is the lack of practical engineers. One of the fronts mentioned is the planned program for training engineers at this level.

Another front involves raising the level of craftsmen and of skilled and semi-skilled workers. This depends, of course on the quality of the vocational teacher training program. But it also depends on an adequately planned program.

The fourth front involves school shop planning and construction. Good equipment is also important.

The fifth front involves the study of administrative practices and good administrative organization at the national level. This assures a clear line of communication, authority and responsibility from the Ministry to the smallest Bakhsh and back.



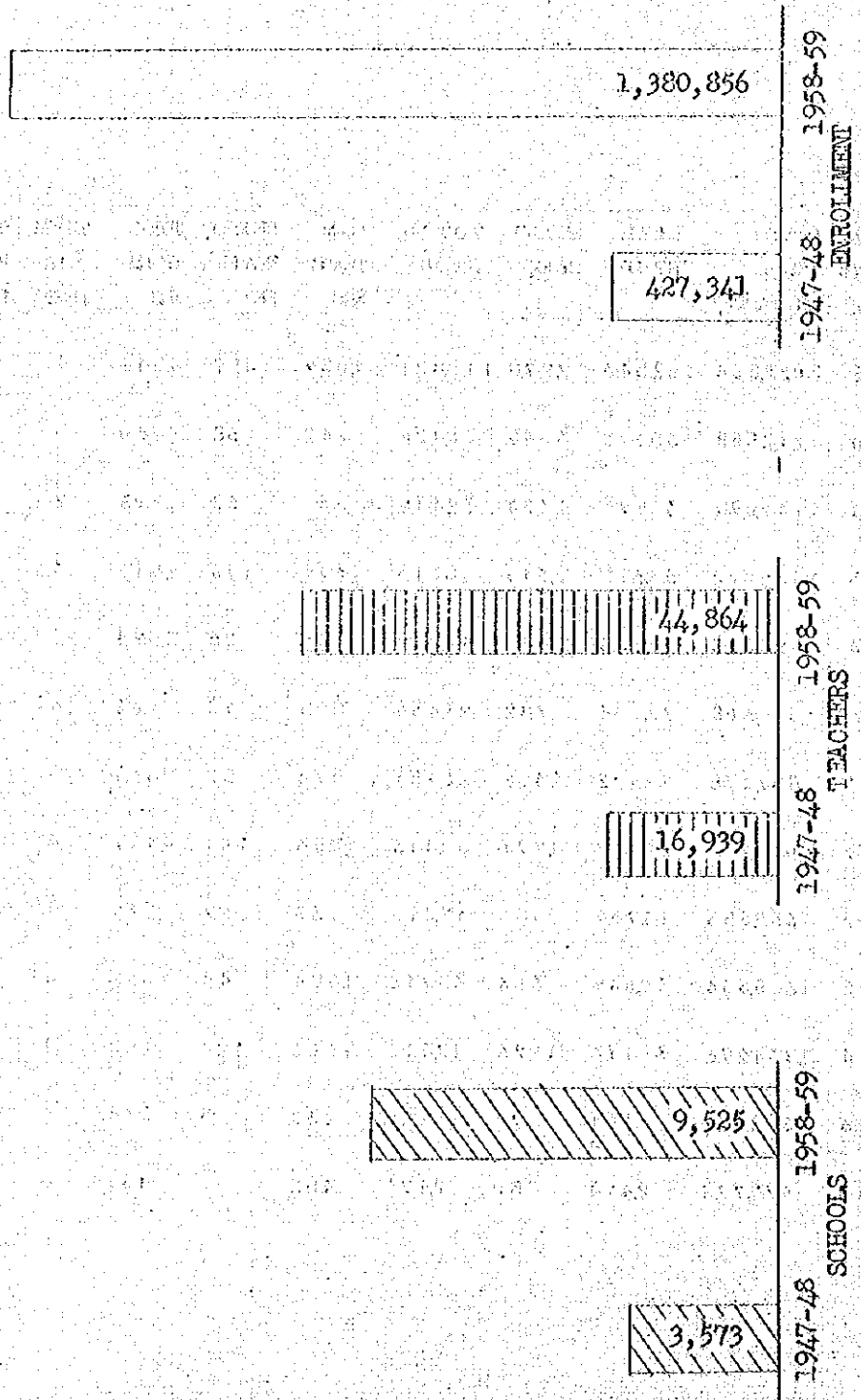
MEHR 1331 MINISTRY OF EDUCATION (IRAN) REPORT

(SEPTEMBER 1958)

CITY	POPULATION	ELEMENT. STUDENT	SECOND. STUDENT	TOTAL STUD.	ELEMENT. TEACH.	SECOND. TEACH.	TOTAL TEACH.	TEACHER Per 100 stud.
TEHRAN	1,925,158	240,137	71,449	311,586	7,715	2,336	10,051	3
RASHT	170,783	25,033	8,786	33,819	806	333	1,139	3
SAR	165,020	27,059	7,548	34,607	708	291	999	3
TABRIZ	472,930	47,877	12,612	60,489	1,768	469	2,237	4
REYHAN	127,738	13,778	4,540	18,318	647	196	843	5
GHOM	404,917	48,587	11,517	60,104	1,698	437	2,135	4
AHRAZ	541,130	62,935	11,617	74,552	1,221	380	1,601	2
SHIRAZ	302,233	32,606	11,093	50,699	1,320	544	1,864	4
KERMAN	112,419	15,675	4,484	20,109	639	262	901	4
MASHAD	401,048	38,577	10,945	49,522	1,294	448	1,742	4
ISFAHAN	382,147	41,485	10,578	52,063	1,392	427	1,819	3
ZAHEDAN	39,239	4,866	1,236	6,101	191	71	262	4
SANANDAJ	53,512	5,942	1,123	7,065	208	69	277	4

STUDENT OSPAN FOR 100 POP. EXCL. CAPT.	POPUL	ELLEM. STUD.	SECOND. STUD.	TOTAL STUD.	HEM, TEACH- HRS	SECOND, TEACH- HRS	TOTAL TEACH- HRS	TEACH. PER 100St.	STUD. PER 100 Pop.
16	2,022,854	107,843	7,978	115,821	4,057	459	4,516	4	6
20	719,558	30,676	3,048	33,724	742	138	880	3	5
13	1,142,091	37,995	1,620	39,615	835	68	903	2	3
13	1,665,074	36,302	2,311	38,613	1,375	140	1,519	4	2
14	593,384	11,533	684	12,217	569	25	5,594	4	2
15	1,571,608	22,454	982	23,436	828	78	906	4	7
14	887,478	21,692	1,459	23,151	574	57	631	3	3
17	1,017,770	29,142	1,271	30,413	1,056	101	1,157	4	3
17	669,853	11,932	483	12,415	539	37	576	5	2
12	1,605,534	30,049	664	30,713	1,284	48	1,332	4	2
14	1,134,296	38,714	1,926	40,640	1,403	120	152	4	4
16	389,369	6,141	79	6,220	230	8	238	4	2
13	420,772	2,414	80	2,494	152	5	157	6	1/2

GROWTH OF EDUCATION IN IRAN



## 2. Agricultural Education

### (A) Introduction

The first agricultural school in Iran, named "Mozafari Agricultural School, was established in 1901. Mr. Dasher from Belgium was employed and appointed as the director of Iran Agriculture. He served for six years together with six other Europeans as teachers. The school was the only organization at the time, located in Tehran. "Beheshti", a village near "Ghar", was assigned as the farm of the school. In 1905 it was transferred to the Baharestan Gardens (the present Parliament Garden) because there was land enough for practical work in agriculture.

A five-year curriculum was put into action; the first three years for practical work and the second two years for scientific and technical studies.

Three groups of graduates were trained in the seven years that the school was open, but as Mohammed Ali Shah, the Ghajar King, had no interest in the development of agriculture there was no possibility for continuing the work.

No activity went on during the following ten years. In 1917 when His Excellency Mr. Ala was appointed as the Minister of Trade, Agriculture, and Community Welfare, it was decided to establish a practical school called "Mactabe Elmi" and a High Agricultural School. But there were no technicians or agriculturalists to be employed as teachers in the new school. In this year the Cabinet decided to allocate a sum of \$6,000 for boarding expenses and salaries and \$367 for equipment and repair of buildings in order to establish the "Mactabe" under the Ministry of Agriculture.

Ghajar palace and gardens were also assigned for the high school in Karadj.

A Austrian, Hans Sheriker, was assigned as the director of the Barzegaran (Farmers) School.

Five students enrolled paying \$1.31 per month for their expenses and 25 others were chosen without fees.

It was a one-year course and in 1918 the first graduates obtained their primary certificates.

In 1921 as Karadj village was no longer under the Ministry of Agriculture, the school was transferred to Chahar Dangeh, a village near Tehran, and as there were no means for transportation the work stopped almost at once.

After that in 1922 it was decided to establish an agricultural school in Tehran at Aminalmolk Park. Two hundred students enrolled; 20 had boarding facilities and the other 180 had lunch there only. His Excellency Mr. Fateh, a graduate of agricultural schools in France was assigned as the director. At the time some American advisers were employed, and they made suggestions to lengthen the period of study.

Some of the students had previously studied up to the third, fourth, or fifth grade of secondary schools; so when this primary school was changed to a secondary one they were able to continue their studies. In 1923 the secondary agricultural school was established with a three-year curriculum; two years of technical study in Tehran and one year practical work at the Model Farm at Karadj.

In 1925 the Model Farm was prepared and a few Iranian engineers who had been graduated from European agricultural schools were employed as trainers. His Excellency Ahmed Hoesin Adl was assigned as the director in 1927.

The Model Farm had an initial budget of 80,000 rials, later raised to 120,000 rials and in 1934 about 300,000 rials was put into farm machinery and the machines were in operation in 1935.

Salary budget per year	\$1,052
Other expenses	\$1,800
TOTAL	\$2,852

The agricultural college was established in 1930 during the reign of the late king Reza-Shah the Great according to a proposal put forward by the late Mostafagh-oli Bayat, the Head of the Agriculture Department at the



time. Mr. Ahmad Hossein Adl was appointed as the director and a few European specialists were employed as professors in addition to the Iranians who were graduates from abroad.

This school was named the College of Agriculture in 1934 and in 1945 became a part of the University of Tehran. Up to 1957 a total of 912 students were graduated from Karadj College.

In 1932 there was an urgent need for the secondary agricultural school graduates to train technicians. The secondary agricultural school was established again in Karadj, but was closed in 1947.

The Veterinary College was established in 1933 under the Ministry of Agriculture and the Ministry of War in Delgosha Gardens where laboratories for making some vaccines and the veterinary hospital were located. (A few veterinary schools had been previously established). In 1934 it was transferred to Sardar Mohtasham Gardens (the present location of the University of War) and at last to Karadj. The entire complex for agriculture and veterinary were then called the Scientific Bongah of Karadj.

(B) The activities of the Ministry of Education towards vocational agricultural education.

From 1932 each year a number of students from the first cycle schools were chosen and sent to the secondary agricultural school in Karadj for training as agriculturalists and teachers.

A book was published for the 5th and 6th grade students in rural areas by Dr. Golsorkhi but there were always difficulties in securing land for these schools and they were not really successful.

In 1945, according to an order of His Majesty the King, the Minister of Education decided to change the curriculum of the primary schools in rural areas and His Excellency Dr. Sadeogh Aalam, the Minister of Education at the time with His Excellency Mahmood Mehren, gave special attention to the subject. The Rural Department was established and two hundred items of farm machinery were bought from the

Shiyar Co. and the first steps were put forward.

When Dr. Keshavarz was appointed as the Minister of Education the work stopped again. Fortunately it did not last long when in 1947 the Department of Rural and Agricultural Education began its work again.

The present program of agricultural education in our schools provides for agricultural instruction in some primary schools, secondary agricultural and teacher training schools, in farm schools and in short courses.

Let us review for a moment how and when and why our primary agricultural schools began.

In 1951 most of our village schools were four-year primary schools and with the added interest in providing improved educational opportunities for rural children arose the demand to add at least two additional years. The immediate question was: What type of courses would be most useful to the students in the village primary schools at this level? Obviously, agricultural information was needed if rural village life was to be improved, to add to the impact of the other village improvement programs - community development, agricultural extension, public health, etc. Therefore, it was entirely natural that the idea of establishing agricultural education in the 5th and 6th grades was evolved, and in 1954, 19 schools were started with 590 students. The years 1956 to 1958 saw a most rapid increase in interest and student enrollment. By 1958 258 schools were operating with 8,544 students enrolled.

The expansion of this system developed less rapidly than expected and of the 2270 teachers graduated up to 1958 from the agricultural teacher training schools, only 232 were teaching agriculture in the primary grades. The remaining 1982 were employed as village teachers in general education, or as dehyars, agricultural extension agents, etc., and although their agricultural background should have provided a more useful basis for their village life, nevertheless, their school training in agriculture was not always used as foreseen.

The problem lay in the difficulty of securing adequate

land, a reliable water supply and a budget for supplies and equipment for the agricultural primary schools. Where successful, these schools have been vigorously defended by local leaders, but all too frequently the school gardens were not models to be emulated by the villagers. Nevertheless, in a country where home gardens are rare, the introduction of gardening through the schools has had an impact on the communities which only time can measure. It has also been through these primary agricultural teachers that the Ministry of Agriculture's 4-H program got its start. Community development dehyars and agricultural extension agents continue to use the school facilities and gardens for their adult classes. Recently, these agricultural schools were transferred to the general education department and less agricultural will be included in the curriculum.

Thirty-three 1st cycle agricultural schools with 1712 students are scattered over most of the country and give advanced training in agriculture. Most of these schools have a garden and a few chickens. While most teachers are deneshsara graduates, a few are engineers from Karadj Collège. These schools have sought to give prevocational and vocational training to village boys. Only a very few schools have succeeded as planned. Many of these schools were located in areas where ordinary 1st cycle schools competed for the student's attendance or where advanced training was possible. While the intent was to provide vocational training - to train farmers, this was almost impossible with students so young who would not be listened to by their elders in a village economy where experimentation in agriculture would not be tolerated with so limited means. It is not surprising, therefore, that the school farms generally have not compared favorably with those of the better and more successful farmers in the areas. This, naturally, has led in some areas to a discrediting of the schools and a falling-off of attendance. I have always insisted that these schools should exist only in those areas where no ordinary 1st cycle school has been established. I further believe that if a 1st cycle school is to be established in an isolated village that it should be an agricultural school for if the students are cut off from any advanced training, their final education should be as useful and practical as possible and the vocational schools

answer the needs best. Actually, all village rural schools should be prevocational or vocational at the first cycle level.

An order has been issued to change these 1st cycle agricultural schools to ordinary 1st cycle schools.

Where have our teachers for the primary agricultural schools been prepared? They are prepared in twelve agricultural teacher training schools where 1054 students in the 10th and 11th classes are being trained.

Where and when did these schools begin? The Sari school was started in 1945 followed by the establishing of 4 additional schools in 1950 at Meshed, Rezaieh, Shiraz and Ahwaz. Kermanshah and Mamazan were added in 1952. Isfahan started classes in 1955, with the opening of 4 additional schools in 1956 - Kerman, Burojerd, Tabriz and Bempour, bringing the total number of agricultural teacher training schools to 12. An agreement has recently been concluded between the Ministry of Education and the Near East Foundation to build and operate an agricultural center at Resht with funds totaling \$716,780 to be used over 3 year period. An additional agricultural center at Karadj will be built by the Ministry of Education funds totaling 70,000,000 rials(\$1,000,000 approx.) supplemented by a \$1,000,000 matching fund from USOM/Iran for equipment, supplies, foreign personnel, etc.

The total cost of the two years of teacher training in agriculture is estimated to be approximately \$921 per teacher.

A total of 323 hectares of land is owned by the Ministry of Education which rents 184 hectares additional land from such organizations as the Oghaf Foundation and the Public Domain.

52 agricultural engineers are employed as teachers in the agricultural teacher training schools. The central office staff has 5 agricultural engineers with one engineer assigned as a Point IV counterpart and one engineer assigned to be the liaison officer with the UNESCO Mission.

To date 2270 graduates have or are teaching in the primary rural schools. The students receive 33% of their training in agricultural subjects, 12% in educational subjects - teaching methods, etc. Each school has a farm which is operated by students as an integral part of their training. There is one school in each ostan and two in Khuzistan. The faculty for agricultural subjects are Karadj College graduates. Students receive training to prepare them for teaching agriculture in the primary 5th and 6th grades, but a more recent program has seen the training of dehyars, agricultural extension agents, and last year 77 tuition students.

(C) Review of the situation

A brief glance at the population chart reveals that our most successful educational efforts are being directed toward our city children, as revealed by the number of students and teachers and the percentages of children of school age in the classrooms. Also, a glance at the government services for education reveals clearly how favored are the city schools in services provided when a comparison is made between the number of government employees in the Ministry of Education responsible for the development of the city schools compared to the improvement of the country cousins. Yet we know that if 80% of the population is rural, that 80% of our educational efforts, including our money, should be directed there, and this is simply not the case. Our problems of providing adequate educational opportunities for the rural areas are baffling and incredibly difficult, but we should not be deterred in our supreme efforts to provide all children everywhere with equal educational facilities and opportunities.

More rural children must be in school. In Tehran, one out of every 10 people is in the elementary school while one out of every 30 people is in the secondary school whereas in rural Baluchestan one out of every 66 people is in the elementary school while one out of every 5,000 persons is in high school! A renewed dedication for the development of rural areas is clearly needed, so that 2,500,000 children from village homes might be provided with an educational system challenging to them and lifting their spirits and minds with functional information which will ultimately bring about the Paradise in Iran His

Imperial Majesty the Shahinshah speaks of.

I firmly believe rural children should receive the kind of schooling which will prepare them to live better in their villages and not encourage them to leave for the life of our cities, for if this were the case, as it often is now, we are only increasing our urban problems. Rural Iran is agricultural and of Iran's 20,000,000 people upwards to 16,000,000 live in the country villages. It is the children in this group who have thus far been neglected and for whom we dedicate our efforts. We have only to turn to a recent report of the Ministry of Education (September 1958) to observe the sharp contrast between the number of rural students in school per 100 population compared to the number of city students in school per 100 population. In most ostan's from 5 to 7 times as many students are in school in the cities (per 100 population) as in the country, and we all know that many of our city children are not yet in school. This, I believe, points up the magnitude of our problem in the rural areas.

For instance in Resht it is reported that 20% of the population is attending school, 2/3rd of whom are in primary classes. Using the same figures for our rural people, we find that of the 16,000,000 rural people about 3,000,000 should be in school and at least 2,000,000 should be attending primary schools, whereas we know that less than 1/5th of that number is in school. Therefore to provide schools and teachers for 1,600,000 children who should be in school but who are not, we realize we are faced with a tremendous undertaking. More than 10,000 rural schools are needed to be staffed by at least 60,000 teachers. And these teachers must have a background of agricultural information which we must be prepared to provide.

Let us, therefore, review our plans for the future, both immediate and far-distant.

For most of our rural children our primary school marks the end of their academic life. For them the school should provide training challenging the best in the student to improve his way of living and stir in him a desire to improve his position. Therefore, the curriculum

of the lower grades in villages should not be the same as that in the cities. Text material should be related to village conditions. Especially in areas where the 6th grade is terminal, and it is foreseen this will be the case in thousands of schools for many years to come, special emphasis should be given to teaching agriculture to boys; for most boys this will be the only possibility of improved agricultural practices and realize there may be more productive methods of agriculture than those used by most villagers. Providing only general education to these boys will only drive them increasingly to the cities.

The original purpose of the establishment of the 1st cycle agricultural school was to provide vocational training. We know now that many students enrolled in the present 1st cycle agricultural schools insist upon continuing their education and have no interest in agriculture as a vocation, especially in areas where higher institutions of learning are available to them.

These schools, therefore, should be continued only in areas where there is no academic 1st cycle school and it is unlikely students can continue up the educational ladder. The most outstanding students might be brought into our agricultural secondary schools.

As Iranian agriculture advances, the type of training changes. Presently Iran is faced with the necessity of training a huge segment of poor rural people who in time will advance to the status of holders of small parcels of land. Another group requiring agricultural training are the future government workers in the various ministries concerned with rural development. Landlords need semi-trained agriculturalists to direct the improved productivity of their villages.

To meet this need I have proposed a system of practical farm schools which has been accepted by the High Council of Education and several new schools may be built this new year. Some students will be enrolled for one year; others for seasonal short courses with both boarding and day students. Evening classes for local farmers are also foreseen.

Approval has been granted by the High Council of Education for the eventual use of the present agricultural teacher training schools as vocational agricultural training schools. These schools will have a three-year course. In first two years students will have a common program. For the third year seven sections have been approved as follows:

- (1) The Animal Husbandry Section will be established for those who wish to enter the livestock business.
- (2) The Gardening Section will prepare students in horticulture.
- (3) The Farm Machinery Section will prepare boys who may wish to work with farm machinery companies or in farm equipment coops either as operators, mechanics, or coop managers.
- (4) The Rural Skills Section will provide training in dairy products, bee keeping, silk worm raising, preservation of food, and other village or cottage industries.
- (5) The Farm Management Section will train boys to be village managers. The Agricultural Bank has expressed an interest in hiring graduates of this course.
- (6) The Extension Section will train agricultural extension agents required by the Ministry of Agriculture which will nominate candidates to these schools and pay for their training.
- (7) The Community Development Section will train dehyars needed by the Community Development Bough of the Ministry of Interior which will nominate candidates to these schools and pay for their training.

Each school will specialize in only one or two sections.

Approval is being sought to include a third year course for preparing students for college. We do not wish to be restricted in our selection of agricultural students only to boys reared in our cities who know little



or nothing about agriculture until they enter college, and we must therefore provide for the time when we may see rural boys graduate from college returning to our agricultural schools as teachers. This I consider essential.

Dean Mehdavi of the Karadj Agricultural College has stated that he considers this plan very important and he believes these students will prove to be the best students in the college.

We also hope to persuade the High Council of Education to approve our proposal for a third year in teacher training. While our practical farm schools will, of course, require direction by agricultural engineers, they should be assisted by teachers of less specialized training. They will likewise be needed in the 1st cycle agricultural schools which we hope in time to continue.

In our recently concluded agricultural convention held here in Tehran, the directors of the agricultural teacher training schools approved this proposal to provide teachers with additional background in general education, agricultural education and teaching methods.

We have witnessed great improvements in the program of agricultural education in recent years. There has been increasingly better cooperation between the Ministry of Education, the Ministry of Agriculture in its agricultural extension program, the Ministry of Health in its public health plan, and the Ministry of Interior in its community development scheme. Our agricultural schools have been given greater liberties to develop their schools to fit the needs of their particular region as well as greater freedom of action in the use of school funds and of exams to mention a few. Nevertheless, still greater progress is foreseen if our department could graduate to that of an independent organization with still greater freedom of action to provide agricultural education to increasingly greater numbers of rural people in our time.

It has been proposed by H.E. Eng. Fateh, former Minister of Agriculture, that Rural Development Centers be established throughout Iran on public domain land. He proposes centers be semisupporting on 500 hectare tracts of land where all organizations interested in rural development

will participate, such as the agricultural experimental farms, agricultural demonstration farms, livestock stations, etc. These centers would supplement the training farms already in operation by the Ministry of Education and those planned apart from this scheme, for our needs are great and we will need numerous demonstration areas where we can develop "Islands of Progress".

#### (D) Proposed Curriculum for Vocational Agriculture Education

Iran stands in need of a number of well trained teachers who can serve, not alone as formal classroom instructors, but who can provide broad educational leadership in rural communities. These teachers should assist in raising the level of agricultural practices, promoting wholesome community activities and advancing educational attainments in school and community.

The curriculum for vocational agriculture education is designed to train people who can fulfill these needs. The term used to designate this class of teachers implies the general education of the people who are engaged in agriculture as a vocation. It is designed to serve youth and adults. The breadth of functions to be served implies a corresponding breadth in abilities to be developed. Training must be broad rather than highly specialized.

Four principal goals or objectives are sought in the training of teachers of vocational agriculture. Provision is made in the curriculum for the development of each of these objectives.

First; the teacher should acquire the knowledge, skills and attitudes essential to rich personal, family and community living as well as effective citizenship. He should develop sensitivity to civic and social responsibilities. A program of general education comprised of sciences, social sciences and humanities contributes to the attainment of this goal.

Second; the teacher should acquire an understanding of the principles and techniques of the physical, biological and social sciences that underlie the agricultural industry and rural living. In content this overlaps the provisions for general education but differs in the point

of view with which the subject matter is taught,

Third; the teacher must acquire a considerable understanding of improved agricultural methods and skill in the performance of farming operations. Included in the program should be some work in soils, irrigation, farm machinery, crop production, livestock production, economics of production and marketing.

Fourth; the teacher should acquire an understanding of basic principles of education and should become adept in the art of teaching. This area of study and accomplishment embraces a professional knowledge of the human being as a learner, the purposes and objectives of the educational program, the curriculum content and teaching methods that will best promote the attainment of the educational objectives.

Recognition of the program for graduation from college and for a teaching certificate may be granted by either of two plans:

- (1) Karadj College may choose to recognize a major in vocational agriculture education and request recognition of the program for a teaching certificate.
- (2) Karadj College may choose to graduate the student in general agriculture with the courses in professional teaching used as a basis for granting the teaching certificate.

Appendix REPORT for 1958 - 1959 SCHOOL YEAR

	(1)	(2)	(3)	(4)	(5)
NAMES OF SCHOOL SCHOOL FOUNDED	SAFI 1945 1324	MASHAD 1949 1328	BEZAIH 1950 1328	SHIRAZ 1950 1328	NEVAZ 1950 1329
1. Agric. Teacher Training Sch :					
Number of the Students :					
10 grade	54	26	59	33	44
11 grade	69	39	57	38	42
2. Agricultural Secondary Sch :					
Number of the Students :					
10 th grade	4	9	1	25	--
11 th grade	--	16	--	28	--
3. Multipurpose training - Agr. Ext.					
-- 2 year					
Dehiyars - 9 months	--	--	--	--	--
4. TOTAL STUDENTS ENROLLED IN SCH:	127	90	117	124	86
5. Engineers employed (not in- cluding director)	4	4	3	4	3
6. Graduate assistants for T.T.S. *	5	4	2	2	2
7. Graduate assistants for Ag. Sec.	1	--	--	--	--
8. " " for dehiyar trng.	--	--	--	--	--
9. Full time teacher trainer	--	1	12hr / Wk	1	--
10. Full time workshop teacher	1	1	--	2	--
11. Part time teachers	3	8	4	--	7
12. Dean	1	1	1	1	1*
13. Supervisor	1	1	1	1	2
14. Accountant	1	1	1	1	1
15. Bookkeeper	1	--	1	1	1
16. Janitor	1	8	1	--	9
17. Purchasing agent	1	1	1	--	--
18. Driver	--	2	1	1	1
19. Gardener	1	1	--	2	1
20. Vachowomen	1	1	2	2	2
21. Night guard	--	1	1	2	3
22. Cook	1	1	1	2	1
23. Cook assistants	2	1	2	1	3
24. Store keeper	1	1	--	1	1

\* Graduate assistants are sometimes assigned as deans or supervisors.

(6)	(7)	(8)	(9)	(10)	(11)	(12)
KEMANSIHAN	MAMAZAN	ISEPAHAN	KERMAN	BUNGOBRO	TAIRIZ	BAMFOUR
1951 1330	1952 1334	1955 1335	1956 1335	1956 1335	1956 1335	1956 1335
37	57	50	33	35	80	21
47	73	43	27	24	39	19
--	--	40	--	13	43	--
--	--	--	--	--	--	--
--	28	--	--	--	40	--
84	132 290	133	60	72	202	40
4	5	4	1	2	2	36
4	4	1	2	3	2	--
--	--	--	--	--	--	--
--	--	--	--	--	2	--
1	1	1	10 hr / wk	--	1	--
1	1	--	--	--	--	--
1	5	11	13	5	3	--
1*	1	1	1*	1	1	--
1*	1	1	1*	1	1	--
1	1	1	1	1	1	--
1	--	1	1	1	--	--
--	4	7	5	3	4	--
--	--	1	0	1	--	--
1	1	1	1	--	--	--
1	--	--	0	1	--	--
1	--	2	1	2	--	--
2	--	2	0	0	--	--
1	1	1	1	1	2	--
3	1	1	1	2	2	--
1	--	1	1	1	1	--

UNESCO  
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LAND USE BY AGRICULTURAL TEACHER TRAINING SCHOOLS

	(1)	(2)	(3)	(4)	(5)	(6)
	SARI	MASHAD	REZAIEN	SHIRAZ	AHWAZ	KERMAN-SHAR
1. Hectares used	30	50	54	32	90	27-1/2
a mod	--	--	54	4	90	--
b rental	30	50	--	28	--	27-1/2
2. Rent paid / yr / h	84 K cotton seed	200 RI	--	100 RI	--	NONE
3. Hectares :						
a bldg, grass, athletic	6	1-1/2	2	4	2	5
b vegetables	2	1	1/5	4	2	1
c woods	--	1	--	1/2	--	1
d fruit trees	4	2	1/2	1-1/2	--	2
e field crops						
f wheat	8	15	30	2	20	15
g barley	--	2	--	1	1/2	--
h cotton	3	1	1/2	3	--	--
i alfalfa	2	1	1/2	13	1/2	1/2
j sugar beets	--	1	1	4	--	1
k grapes	--	1	1/2	--	--	1/4
l beans	1	2	1/2	--	1/4	--
m sesame	--	--	--	--	1/2	--
n potatoes	--	1/4	1	--	1/4	1
o corn	--	--	1/2	--	1/4	1/2
p peas	3	--	1/2	--	1/2	1/4
q date trees	--	--	--	--	200	--
r citrus trees	4	--	--	1/2	100	--
s melons	1	--	1/2	--	1	--
t pasture	--	--	--	--	--	--
u TOTAL	14	21	35-1/2	23	24	18-1/2
4. Hectares irrigated	--	8	30	28	90	12-1/2
5. " dry farmed	30	17	25	1/2	--	15
6. " experimentation	--	--	1	7	4	--
7. " seed propagation	--	1	1/2	1-1/2	--	1/4
8. Livestock :						
a cows	2	2	10	--	--	2
b calves	5	2	5	--	--	1
c sheep	--	--	--	130	--	--
d poultry	60	--	150	200	--	50
e turkeys	--	--	--	--	--	--
f oxen	2	--	--	--	--	1
g beehives	--	--	4	7	--	--
h horse	--	1	--	--	--	--
i goats	--	--	--	10	--	--

(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	TOTAL
MAMAZAN	ISIRILAN	KIRMAN	BURUJED	TABRIZ	BAMPOUR	RASHI	KARADJ	
26	6	210	2	50	12	40	40	669-1/2
--	6	210	--	--	12	40	40	456
26	--	--	2	50	--	--	--	213-1/2
--	--	--	15000R	1000K WHEAT	--	--	--	
5	2	1	1	2				31-1/2
7	1		1					19-1/5
--	--		1/4	2				4-3/4
2	2	1	1/2					15-1/2
3	1/2	1/10	--					78-6/10
	1/2		--					4
2-1/2	--		1/8					10-1/8
1	--		--					18-1/2
	--		1/8					6-1/8
	--		--					1-2/4
	--		--					3-2/4
	--		--					1/2
	--		--					2-1/2
	--		--					1-1/4
	--		--					4-1/4
	--		--					200 trees
	--		--					5
2	1/4	2	--					6-3/4
			--	5				5
26	1-1/4		1/4					173-1/2
19	4		2					193-1/2
2	--		--	50				139-1/2
1/4	--		--					12-1/4
1/30	--		--					3-1/4-1
5	--		--					21
5	--		--					18
	--		--					130
1000	--	50	40	200				1760
	--	--	--	--				0
	--	--	--	--				3
3	--	--	2	--				12
	--	--	--	--				1
	--	--	--	--				10

Jan. 20, 1959

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INVENTORY OF AGRICULTURAL EQUIPMENT OF THE AGRICULTURAL SCHOOLS  
SECONDARY LEVEL--IRAN--1959

Name of equipment	SARI	MASHAD	REZAYEH	SHIRAZ	AHWAZ
1. Generator -- Idator	6 KW		6-1/4 KW	6-1/4 KW	
Dutz					
other		50			66
city power				X	
2. Truck -- Chevrolet Pickup	1949		1949	1954	1950
Dodge -- pick -- up	1954	1954	1954	1954	1954
Studebaker		1		1	
3. Car -- VW		1954			
other					
4. Tractor -- Cockshutt					
M133K	1	1	1	1	1
AC45		1	1	1	1
Fordson	1				
Fiat		1	1	1	
Lanz				60 H	
Ferguson					25 H
MM					
5. Plow -- M1	1	1	1		2
A0	1	1	1	1	3
Fordson					
Fiat		1	1	1	
Lanz				1	
Ferguson					2
MM					
6. Mower	2				
7. Cultivator					
8. Disc, plow (plow)					
9. Disc, tandem	2	2	2	1	3
10. Hay rake, dump			1	1	1
11. Grain drill	1	1	1	2	2
12. Harrow, spring tooth			5		1
13. Harrow, spike tooth	2	1	2	2	3
14. Trailer, 2 wheel		1	1	1	
15. Trailer, 4 wheel	1	1		1	1
16. Thresher -- Turner		1		1	
17. Thresher -- hand operated		1	1	2	1
18. Baler, hay	1	1	1	1	1
19. Binder, grain	1		1	1	
20. Mower, horse drawn	1	1	1	1	
tractor drawn	1	1		1	1



\* \*

KERMAN- SHAH	MAMAZAN	ISPAHAN 11 KW	KERMAN	BUROJERD	TAIRYZ	DAMPUR	TOTAL	
							4	1.
36 KW							1	
	50 KW						4	
		X		X	X		4	
1950	4				1954		10	2.
1954		1954	1954				8	
			JWER-53				2	
							1	3.
	2						2	
								4.
1		1		1	745 H		8	
	1		1	1			5	
							1	
1		1		1			6	
							1	
	18H25H						3	
					2		2	
1		1		1	1		9	5.
			1				7	
1								
1		1		1			6	
							1	
	2						4	6.
					2		2	7.
	1	1					4	6.
			1					7.
	1						1	8.
1	1	1	1	1			14	9.
	1	1		1			6	10.
1	1	1	1	2	1		13	11.
1	1			3	1		12	12.
2	1		1	4			17	13.
1	1	1			1		7	14.
1	2			1	1		9	15.
1		1			1		5	16.
				1			6	17.
1	1				1		8	18.
	1	1			1		6	19.
1		1			1		7	20.
1	1	1			1		8	

Jan. 20, 1959

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Inventory of agricultural equipment  
of the agricultural teacher training schools

	SARI	MASHAD	REZAINI	SHIRAZ	AHVAZ
21. Engine	1	1			2
22. Pump	2	1		2	2
23. Land leveler					
24. Land scraper	1		1	1	
25. Stalk cutter			1		
26. Potato planter					
27. Plow, animal drawn	3	1	9	3	
28. Ditcher	1			1	1
29. Marshall flume					
30. Corrugator					
31. Float					
32. Border ridger					
33. Land harrow					
34. Field chopper					
35. Grist mill					
36. Seed cleaner -- hand operated		1		1	1
37. Seed cleaner -- machine operated					
38. Seed treater			1	1	1
39. Incubators 72 egg	1				
144 egg		1	1	5	
250 egg					1
other					
40. Brooder	1	1	1	1	1
41. Planot, Jr.	50	12	24	10	20
42. Coin cheller, hand operated			1		1
43. Sprayer -- Dobbins power	1		1	1	
44. Sprayer -- hand pressure	5	3	4	2	5
45. Duster -- back pack type			2	2	5
46. Cream separator	1	1	1	1	1
47. Milk tester		1			
48. Honey Extractor		1			
49. Typewriter	1	1	1	2	2
50. Mimeographing machine	1	1	1	1	1
51. Tape Recorder	1	1	2	1	2
52. Microscopes	13	5	6	3	7
53. Printing press			1		
54. Projector -- slide	1	1	1	1	1
55. -- movie	1	1	1	1	1
56. Opaque projector					

KOTAMAN-SHAH	MAMAZAN	ISPAHAN	KOTAMAN	BURJOJERO	TAHRTZ	RAMPOUR	TOTAL	
1	3(1)D-18)	1	2-30H		KA		11	21.
16 H	3 (18 H)	2	1		KANAT		29	22.
	1						1	23.
2	1	1			1		8	24.
					5		4	25.
					1		1	26.
1	10H	3		3	1		34	27.
				1	1		5	28.
	2						9	29.
	1						1	30.
	1						1	31.
	1						1	32.
	1						1	33.
	1						1	34.
	1				1		2	35.
1	1		1	1	1		9	36.
	1				5		4	37.
1	1						5	38.
1				1	10		13	39.
1		1	1				10	
							1	
	2200 cap						2200	
2	6+		1	1	2		17	40.
30	+	30	2	2	30		210+	41.
							2	42.
	1+	1			1		6+	43.
1	1+	2		5	8		36+	44.
	1+	1		1	2		14+	45.
1		1	1	1	1		10	46.
					1		2	47.
				1			2	48.
	1	1	1	2	2		14	49.
1	11	2	1	1	1		11	50.
1		1	1	1			11	51.
10		1(?)	1	2			47	52.
			--				1	53.
1			--	1			7	54.
1	1	1	--				8	55.
			--				0	56.

Jan. 20, 1959  
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NUMBER OF GRADUATES OF AGRICULTURAL TEACHER TRAINING SCHOOLS

	1947-48 1326-27	1948-49 1327-28	1949-50 1328-28	1950-51 1329-30	1951-52 1330-31	1952-53 1331-32	1953-54 1332-33
SARI	30	22	29	57	34	—	41
MASHAD				—	77(1)	34	14
REZAIEN				—	73(1)	23	28
AHWAZ				—	25	20	4
SHIRAZ				—	98(1)	29	62
KERMANSHAH					—	23	19
MAMAZAN						—	56
ISFAHAN							
KERMAN							
BUROJERD							
TABRIZ							
DAMPOUR							
RASHT							
KARADJ							
TOTAL	30	22	29	57	307	129	224

1954-55	1955-56	1956-57	1957-58		TO GRADUATE fall-59	TO GRADUATE fall-60	Total
1333-34	1334-35	1335-36	1336-37	Total	1337-38	1338-39	Enrollment 1958-59
45	29	57	61	405	69	54	123
24	30	23	28	230	39	26	65
20	32	60	36	282	59	57	116
21	32	44	39	185	42	44	86
28	31	70	28	346	38	33	71
30	20	56	35	183	48	37	85
105	61	61	86	369*	57	73	130
—	46	69	32	147	43	50	93
		—	29	29	33	27	60
		—	40	40	24	35	59
		—	40	40	39	80	119
		—	19	19	21	19	40
		—	—	—	—	—	—
		—	—	—	—	—	—
273	281	440	473	2265	512	515	1027

\* Does not include dehydrars, agr, ext agents, or secondary agri. school graduates.

- 1) 3 year program terminated with 11th and 12th year students graduating the same year.

Courses and credits

Exact and physical sciences: credits

Mathematics	4
Chemistry	5
Statistics	<u>3</u>
Total	12

Biological sciences:

Hygiene and sanitation	3
Bacteriology	3
Botany	4
Zoology	3
Entomology	3
Genetics	<u>3</u>
Total	19

Social sciences:

Principles of sociology	3
Principles of psychology	3
Government and the individual	3
Principles of economics	6
Rural sociology	<u>3</u>
Total	18

Applied plant sciences:

Soils	4
Crop production	8
Range management	3
Total	15

Foreign language 12

Applied animal sciences:

Anatomy and physiology of farm animals	3
Feeds and feeding	3
Livestock management	8
Total	15

Applied economics:

Principles of agricultural economics	3
Farm management	4
Farm credit	3
Marketing farm produce	3
Total	13

Agricultural engineering:

Irrigation and drainage	5
Farm machinery	6
Total	11

Professional courses in teaching:

Human growth and development	3
------------------------------	---

Principles of learning (educational psychology)	3
Curriculum and methods (general)	3
Teaching	3
Adult education	3
Methods in farm mechanics and agriculture	3
History of education	3
Social principles of education	3
Total	24
Elective	5
Grand total	144

#### DEMONSTRATION SCHOOL OF BUSINESS

##### REPORT OF ACTIVITIES OF DEMONSTRATION SCHOOL OF BUSINESS Spring Conference Education Division

- 0.0 The purpose of this report is to indicate the status and major activities of the Demonstration School of Business.
- 0.1 Business education is a new program and concept in Iran
- 0.2 The business education American staff consists of two technicians. Miss Luille Chaffin, Tehran Ostan and Bruce I. Blackstone, Headquarters.
- 1.0 Business education is a part of the Educational Development plan called for in Project 45.
- 1.1 Business education consists of training in the consumption of the services of business and the production of services for business. It is both general and special education.



- 1.2 This program is a cooperative one designed to develop trained office workers to aid:
- a. Governmental offices increase efficiency.
  - b. Private business firms increase efficiency.
  - c. Provide personnel trained in the support of project activities of USOM and GOI.
- 1.3 In buildings and with staff provided by GOI the procedure is to cooperatively,
- a. Offer vocational type training in the high schools of Iran.
  - b. Offer vocational, short course and specialized training through the Night School of Business.
  - c. Offer training on the junior college vocational level.
  - d. Offer teacher-training to support these programs.
- 2.0 The project agreement sets up the Demonstration School of Business and places it in Tehran.
- 2.1 This "school" is divided into:
- a. The Night School of Business.
  - b. The Day School of Business.
  - c. The Materials and Planning Division.
- 2.2 The purpose of the Night School of Business is to:
- a. Provide vocational training for persons presently employed.
  - b. Offer vocational training for others wishing to develop vocational office skills.
  - c. Offer specialized short courses in cooperation with other agencies and groups.
  - d. Offer the opportunity for development of materials during the initial stages of business education development.
- 2.3 The purpose of the Day School of Business is to:
- a. Provide for development of vocational skills for high school graduates.
  - b. Provide a vehicle for necessary teacher-training to support the business education program.
- 2.4 The purpose of the Materials and Planning Division is to:
- a. Develop text and teaching materials.
  - b. Develop plans of operation.
  - c. Supervise expansion of business education program.

3.0 Support for business education comes from:

- a. Grass root parental demand,
- b. Private business,
- c. Governmental agencies.

3.1 The business education program provides an opportunity for training for some of the 8,000 high school graduates who yearly can not go to institutions of higher learning.

#### ESTABLISHMENT OF COURSE NUMBERS

Personnel concerned

0.0 The purpose of this memorandum is to establish course numbers for courses offered in the Demonstration School of Business.

1.0 Explanation of number system.

1.1 Numbers are assigned to each class to facilitate course identification. A letter prefix is assigned to each major area and courses are listed numerically within the major. The numerical designation is a rough indication of order in which courses are to be taken by students. The 100 series courses are basic introductory courses involving content preparation. The 200 series courses are intermediate courses involving application of content material covered in the 100 series. The 300 series represents interpretation and application of previously learned skills.

1.2 The following major area letter designations are assigned:

- a. G for General studies courses
- b. A for Accounting courses
- c. C for Clerical courses
- d. S for Secretarial courses
- e. M for Management courses
- f. T for Teacher-training courses
- g. X for experimental or short specialized courses

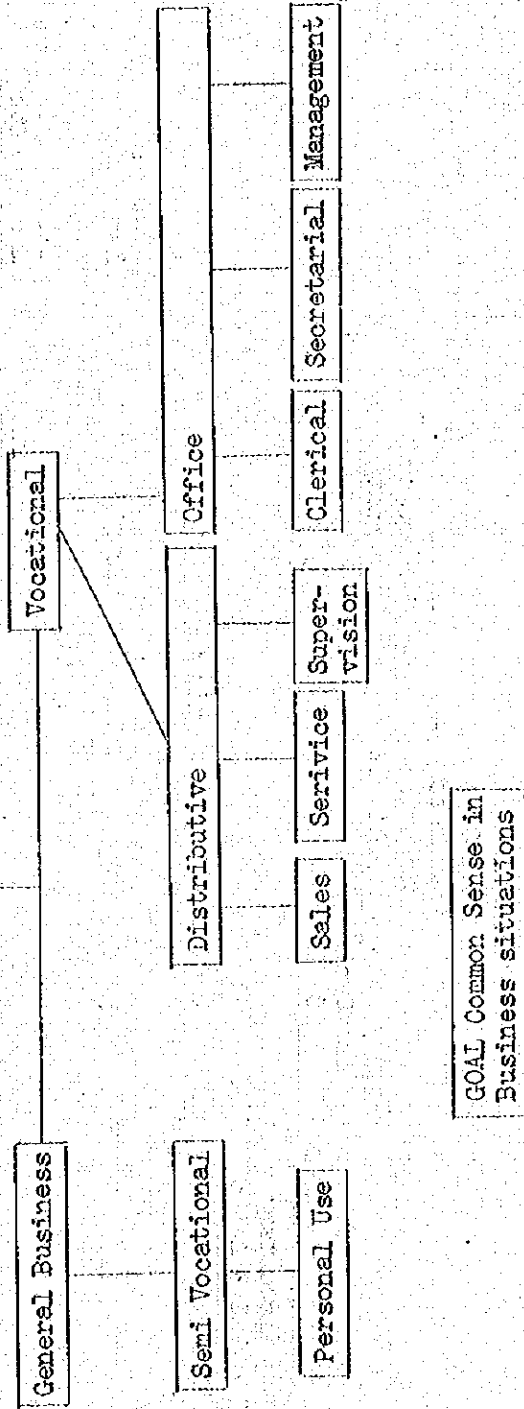
1.3 This listing is temporary and additional courses may be assigned to each major area as deemed necessary.

2.0 Course numbers and titles

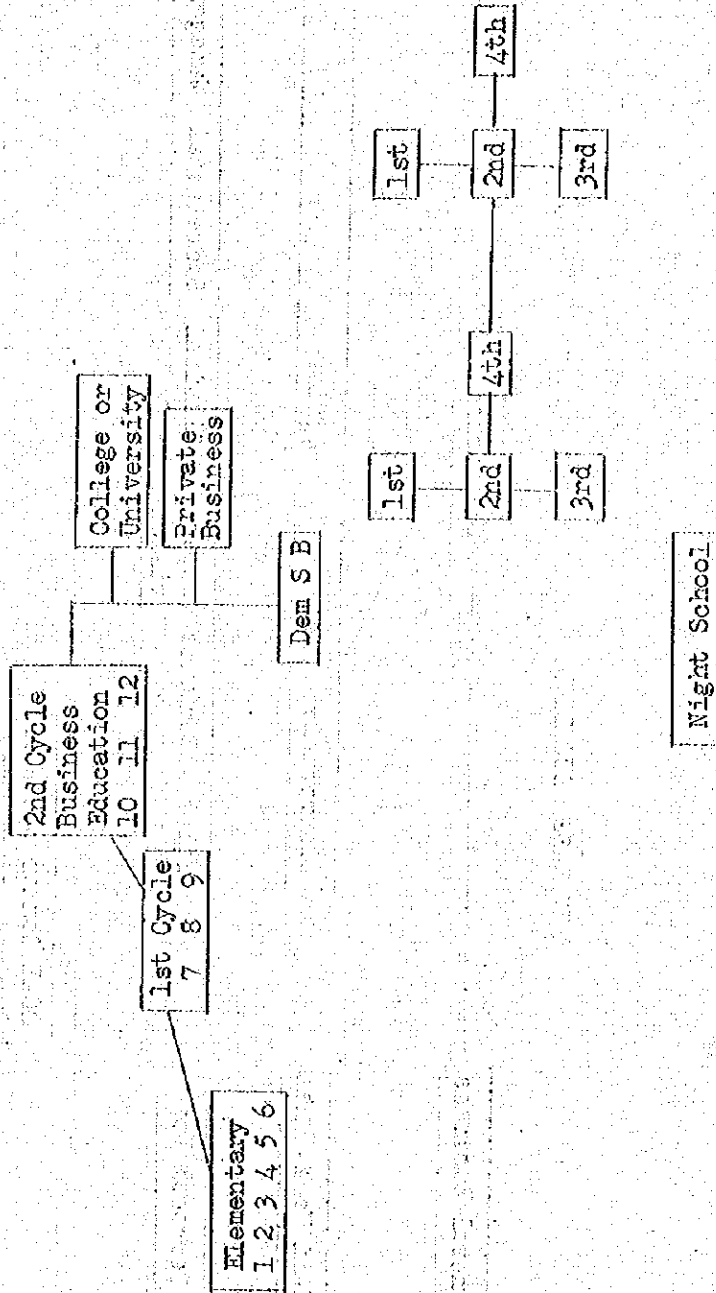
- 2.1 General studies  
 G 100 Foreign language, English  
 G 105 Algebra  
 G 110 Guidance and Individual Study  
 G 200 Cooperative Work Experience
- 2.2 Accounting  
 A 100 Bookkeeping  
 A 105 Business Mathematics  
 A 200 Accounting I  
 A 205 Taxation  
 A 300 Business Statistics  
 A 305 Accounting II  
 A 310 Investments
- 2.3 Clerical  
 C 100 Office Machines, calculation  
 C 105 Office Machines, duplication  
 C 110 Office Machines, dictation and transcription  
 C 115 Filing  
 C 200 Clerical Practice
- 2.4 Secretarial  
 S 100 Beginning typewriting, Farsi  
 S 105 Beginning shorthand, Gregg  
 S 110 Beginning Briefhand  
 S 200 Beginning typewriting, English  
 S 205 Advanced typewriting, Farsi  
 S 210 Advanced shorthand, Gregg  
 S 215 Advanced Briefhand  
 S 300 Business Communication  
 S 305 Personality Development  
 S 310 Office Practice  
 S 315 Report Writing  
 S 320 Office Management
- 2.5 Management  
 M 100 Introduction to business  
 M 105 General Business  
 M 110 Business Economics I  
 M 115 Business Law I  
 M 120 Business Organization  
 M 200 Money and Banking  
 M 205 Business Law II  
 M 210 Business Economics II

- 2.5 Management (cont'd)
  - M 300 Leadership
  - M 305 Supervision Techniques
  - M 310 Personnel Management
  - M 315 Advertising
  
- 2.6 Teacher-training
  - To be developed

BUSINESS EDUCATION



DEMONSTRATION SCHOOL OF BUSINESS Business Education Program



SUGGESTED ORGANIZATION PLAN FOR BUSINESS EDUCATION IN IRAN  
Personnel Concerned

- |                              |             |
|------------------------------|-------------|
| 1.0 GRADUATE SCHOOL          | MCS         |
| 2.0 DAY SCHOOL OF BUSINESS   | BGS         |
| 3.0 HIGH SCHOOL 5th BRANCH   | DIPLOMA     |
| 4.0 NIGHT SCHOOL OF BUSINESS | CERTIFICATE |

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Appendix:

APPENDIX

1. The following information is required for the purpose of the Act:

(a) the name of the person or body of persons;

(b) the address of the person or body of persons;

(c) the nature of the business or profession carried on by the person or body of persons;

(d) the name of the person or body of persons who is or are the proprietor or proprietors of the business or profession;

(e) the name of the person or body of persons who is or are the manager or managers of the business or profession;

(f) the name of the person or body of persons who is or are the secretary or secretaries of the person or body of persons;

(g) the name of the person or body of persons who is or are the treasurer or treasurers of the person or body of persons;

(h) the name of the person or body of persons who is or are the chairman or chairmen of the person or body of persons;

(i) the name of the person or body of persons who is or are the members of the person or body of persons;

(j) the name of the person or body of persons who is or are the directors of the person or body of persons;

(k) the name of the person or body of persons who is or are the officers of the person or body of persons;

(l) the name of the person or body of persons who is or are the members of the person or body of persons;

Continued

## 1. School System and Educational Administration

### (A) School System

As shown in Chart 1, the Japanese school system follows the 6-3-3-4 pattern, i.e., 6 years of elementary education, 3 years of lower secondary education (junior high school, usually referred to as middle school), 3 years of higher secondary education (senior high school), and 4 years of education on the college or university level. The six years of elementary school and the three years of lower secondary education together constitute the nine years of compulsory education.

#### (1) The Japanese School System

Source: Statistics on Industrial Education in Japan, p.1.

Vocational technical education starts on the lower secondary school level and may be divided into the following categories:

- a) vocational technical school education,
- b) vocational training given by public institutions,
- c) vocational training organized by enterprises,
- d) other vocational training.

Chart 2 shows agencies which exercise jurisdiction over the various types of vocational technical education.

#### (2) Jurisdiction Over Vocational Training

Source: Statistics on Industrial Education in Japan, p.2.

Chapter 2 will deal with higher professional and technical education, whereas chapter 3 will take up the subject of vocational & technical education on the secondary school level.

(B) Educational Administration

(1) Related Laws and Ordinances

The principal laws and ordinances concerning vocational technical education are collected in a separate volume entitled "Industrial Education in Japan, Series III: Laws and Ordinances Related to Industrial Education in Japan,"

(2) Organization of Educational Administration

(a) Outline of Educational Administration of Chart 3. (Education in Japan, p 28)

(b) Operating Relationships of National Educational Agencies of Chart 4. ( " " , p 30)

(c) Organization of the Ministry of Education of Chart 5. ( " " , p 32)

(d) Operating Relationships of Local Educational Agencies of Chart 6. ( " " , p 34)

(3) Expenses for Technical Education

(a) Higher Education

In order to establish more science Engineering departments, enlarge scientific installations and augment research funds necessary to make up for the lack of scientists & engineers budgetary appropriations for state universities and junior colleges are increased from year to year. For private universities the state gives grants in aid in the form of subsidies for research equipment and special grants for science & engineering departments.

(b) Secondary Education

In order to promote vocational technical and scientific education, the "Industrial Education

Promotion Law" (cf. Laws and Ordinances Related to Industrial Education in Japan, p. 66) and the "Science Education Promotion Law" were enacted. Under these laws, the state shoulders part of the expenses necessary for the improvement of equipment and the training of and research by teachers. In addition, the state undertakes the compilation of textbooks. Teachers engaged in vocational and technical education are paid special allowances in addition to their regular salaries (cf. l.c., p. 202).

## 2. Higher Professional and Technical Education

### (A) Installations and Equipment

#### (1) Categories of Institutions

##### (a) Universities

The aim of the university, "which forms the center of learning, is to impart wide knowledge, to teach profoundly special academic subjects and to conduct research in the same, and to develop the intellectual, moral, and practical faculties" of the students (School Education Law, Art. 52; cf. Laws and Ordinances Related to Industrial Education in Japan, p. 9). The length of the course of studies ordinarily is four years, but in the faculties of medicine and dentistry six years are required.

Faculties in the fields of science and engineering are listed below:

Faculties of Literature and Science falling into the science group	17
Faculties of Science	25
Faculties of Engineering	69
Faculty of Mining	1
Faculty of Industrial Arts	1
Faculty of Telecommunications	1

Faculties of Science and Engineering	11
Textile Faculties	3
Mercantile Marine Faculties	2

(b) Junior Colleges

The aim of junior colleges is "to provide, on the basis of a high school education, a two or three year university education which emphasizes practical professional occupations and to train good members of society" (Junior College Standards Law; cf. Laws and Ordinances related to Industrial Education in Japan, p. 61).

The length of the course of studies is two or three years.

Departments in the fields of science and engineering are as follows:

Departments related to science 2

Departments related to engineering 70

(2) Entrance Qualifications

Universities and junior colleges require the same entrance qualifications, viz., graduation from high school, or the equivalent thereof.

Applicants for admission to a university or junior college are selected on the basis of an entrance examination.

(3) Equipment

The equipment of universities and junior colleges must conform to fixed standards, as required by Art. 3 of the School Education Law and the University Standards and Junior College Standards based on the same (cf. Laws and Ordinances Related to Industrial Education in Japan, pp. 46-61).

(B) Curricula and Teaching Methods

(1) Credits and Completion of Courses

(a) Credit Requirements of Universities

A student is required to complete during four years of studies at a university the following credits:

general education (12 credits in each of the three fields of humanities, social sciences and natural sciences)	36 credits
Foreign languages	8 "
health and physical education	4 "
special subjects	76 "
total	124 "

(b) Credit Requirements of Junior Colleges

A student is required to complete during two or three years of studies at a junior college the following credits:

	2 year system	3 year system
general education	12 credits	18 credits
foreign languages	4 "	6 "
health and physical education	2 "	3 "
special subjects	44 "	66 "
total	62 "	93 "

(c) Completion of Courses

Course work to be completed at universities or junior colleges is divided into three categories, viz., lectures, seminars and laboratory or practical training.

Credits for lectures: one credit requires a lecture of one hour per week for fifteen weeks; the lecture period of one hour in the classroom should demand a preparation or review of two hours outside the classroom.

Credits for seminars: one credit requires a seminar of two hours per week for fifteen weeks; the two hour seminar in the classroom should demand a preparation or review of one hour outside the classroom.

Credits for laboratory work or practical training: one credit requires three hours of experiments or practical training a week for fifteen weeks, the whole work to be done in the laboratory or at the place of training.

(2) Promotion, Failure and Withdrawal

The system of promotion or failure does not exist in universities or junior colleges. A student who completes the prescribed number of credits during his years of attendance may graduate.

Withdrawal, change of school and leave of absence must be approved by the faculty meeting and are decided by the president.

(C) Teaching Personnel

(1) Demand and Supply

A lack of teachers (particularly of assistants and other auxiliary personnel) developed due to the erection of new departments with the implementation of the Scientific Technicians Training Program (see IV) and the increase in the number of students who



may be admitted. Although special measures for preferential treatment have been taken (v.g. scholarships for graduate students in science or engineering departments), future demand may far exceed supply.

## (2) Selection and Training

### (a) Selection

In state or prefectural universities (including junior colleges; the same applies below), the selection of the members of the faculty must be approved by the faculty meeting and is decided by the president.

### (b) Training

The training program includes trainees to be sent abroad and others to be trained at home at government expense.

## (3) Tenure

Based on the above-mentioned selection, members of the faculty of state universities acquire the status of state government officials, those at prefectural universities, of local government officials.

Faculty members of state universities are subject to the disciplinary regulations of the National Public Service Law, and those at prefectural universities to the same regulations of the Local Public Service Law. Both laws restrict, v.g., political activities.

Based on the special nature of the occupation and responsibilities of the faculty members of state or prefectural universities, the Educational Public Service Special Law (1949, Law nr. 1) provides a very firm guaranty of their status.

According to the Educational Public Service Special Law, selection, advancement, transfer, demotion, dismissal, suspension and punishment of faculty members of state or prefectural universities must be approved by the managing agency of the university.

#### (4) Salaries

Salaries of teachers vary with their academic background and years of service. Salaries of staff members of state universities are fixed by the Law Concerning Salaries of General Employees. Compared with administrative officials, they receive a preferential treatment, but their salaries still remain far below those in private employment.

Salaries of staff members of prefectural universities are fixed by local regulations and do not differ greatly from those of state universities.

#### (D) Training of Scientists and Engineers

##### (1) Purpose of the Technical Man Power Training Program

Compared with the anticipated demand for graduates from the science and engineering departments of universities and junior colleges in fiscal 1962, the last year of the new Economic Five Year Plan, the estimated number of graduates from universities or junior colleges shows a deficiency, which represents the increased demand for scientists & engineers caused by the industrial progress of the country. The Technical Man Power Training Program was set up to make up this deficiency.

##### (2) Method of Measuring New Demand for Scientific Personnel

(a) Survey of the educational background of the labor force actually at work in 1955.

Survey of the specialization of high school graduates.

(b) Estimate of new yearly demand according to a specialization based on the anticipated employment increase accompanying economic expansion as projected by the new Economic Five Year Plan and the surveys referred to in (a).

- (c) Estimate of yearly replacements necessitated by retirement or death.
- (d) The total of (b) and (c) gives the gross new demand; if the number of those newly employed who do not obtain jobs in line with their special preparation is subtracted, we obtain net new demand. For fiscal 1962, this figure comes to about 25,000.
- (e) The demand for scientists & engineers will increase at a proportionally higher rate on account of the changes in the employment structure caused by the modernization of the industry. This increase is estimated at 2,500 by fiscal 1962.
- (f) If from 27,500, the combined total of (iv) and (v), 19,500, i.e., the prospective total of graduates for the years up to 1962 - calculated by multiplying the fixed number of students who can be admitted by the graduation rate - is deducted, the increase target figure of 8,000 is obtained.

(3) Implementation of the Scientific Technicians Training Program

The target figure of 8,000 is to be trained under a four-year program which was started in fiscal 1957. The results obtained so far and the estimated result for 1960 are as follows:

1957(actual result)	647
1958 " "	2,401
1959 " "	2,787
1960(plan)	ca. 2,165

Fields of special emphasis laid in the program are mechanical engineering, electrical engineering (electronics) and applied chemistry (chemical engineering).

### 3. Secondary Vocational and Technical Education

#### (A) Installations and Equipment

##### (1) Categories of Institutions

There are no special schools or courses for vocational and technical education on the level of lower secondary education. According to the School Education Law, the purpose of lower secondary schools (junior high schools) is "secondary common education" (cf. Laws and Ordinances Related to Industrial Education in Japan, p. 7); the goals to be obtained are described in Art. 36 of the same Law. Among the required subjects intended particularly for the goal set forth in nr. 2 of Art. 36 are Industrial Arts and Home Economics, which give some kind of technical education as part of the general education. For pupils who intend to seek employment immediately upon graduation, some additional electives are offered, including Agriculture, Industry, Commerce, Fisheries and Home Economics.

According to the School Education Law, the purpose of the upper secondary school (high school) is "to impart higher common and special education ... on the basis of the education given in the lower secondary school;" and Art. 42 of the same Law sets forth the goals to be attained. Particularly for the goals described in nr. 2 of Art. 42, special schools or courses are provided for vocational education in agriculture, industry, commerce, fisheries, home economics, radio communications and mercantile marine. A general outline is given in the supplement "Statistics on Industrial Education in Japan," pp. 6,7. Their courses may be further divided into more specialized sub-courses. As an example, the courses in "Industry" are set forth in the supplement "Statistics on Industrial Education in Japan," p. 8.

##### (2) Entrance Qualifications

Since the lower secondary school (junior high school) forms part of compulsory education, it admits

all who finish elementary school. But admission to the upper secondary school (senior high school) is conditioned, besides graduation from lower secondary school, on a selective entrance examination. The rate of competition (total number of applicants to fixed number of students who can be admitted) is 1.2 for agriculture, 2.0 for industry, 1.7 for commerce and 1.5 for home economics.

### (3) Educational Installations

The largest part of the institutions providing secondary vocational technical education are professional high schools erected by local public bodies. Next come private professional high schools and then those set up by the state. Most of these schools also run part-time courses for the convenience of students who attend school while working. Moreover, there are part-time (night) high schools attached to factories or enterprises.

Full-time high schools offer a three-year course, while part-time high schools require four years for graduation. There are other institutions offering short technical courses. They do not come under the School Education Law but are classified as "miscellaneous schools" which possess no special qualifications. The number of high schools by courses and the number of students are given in the supplement "Statistics on Industrial Education in Japan," pp.6, 7; the present state of miscellaneous schools is shown *ibid.*, p. 20.

The Second World War had destroyed installations equipment of high schools giving vocational technical education. Following the enactment of the above-mentioned Industrial Education Promotion Law, the National Treasury has been paying part of the necessary expenses for a systematic improvement of facilities since 1952. This program has achieved considerable success. Another program, begun in 1958, aims at providing more of the new equipment necessary to keep abreast of technical progress. Contributions by the National Treasury for this purpose are shown in the supplement "Statistics on Industrial Education in Japan," p. 28.

(B) Curricula and Teaching Methods

(1) Aims and Contents

An outline of the development of secondary technical education in Japan is given in the supplements "Development of Industrial Education in Japan" and "History of Industrial Education in Japan 1868 - 1900." Modern technical education was first introduced after the Meiji Restoration in order to train personnel capable of using the industrial techniques adopted together with Western civilization. During the almost ninety years which have since elapsed, vocational and technical education has achieved remarkable progress.

In the course of the various reforms of the educational system carried out after the Second World War, the curriculum of secondary vocational and technical education underwent a provisional amendment in 1947, and a new curriculum in conformity with the spirit of the School Education Law (cf. Laws and Ordinances Related to Industrial Education in Japan, p. 2), which had been enacted in 1948, was drawn up in 1949; a course of study based on this curriculum was compiled in 1951. This course of study was amended in 1956.

According to this course of study, out of a total of 96 - 108 units to be completed in three years, a minimum of 39 units in general subjects, comprising

Japanese, social studies, natural sciences, mathematics and physical education, must be taken by all students, whether they follow the general course or the vocational technical course. These subjects are particularly intended to contribute to the attainment of the goals assigned to the high school in the School Education Law. In the vocational technical course, a minimum of 30 units and an average of 50 - 55 units in technical subjects may be freely chosen out of the subjects listed in the course of study in addition to the 39 required units.

The course of study describes the general purpose of secondary industrial education as follows:

"Industrial education in high school is founded on the education given in lower secondary school and aims at training technicians who form the actual driving force behind the future progress and development of the industry of our country. This education cultivates, on the basis of on-the-spot techniques, the basic knowledge, skill and attitudes and gives the consciousness proper to a man in industry.

In particular, it is directed toward the following objectives:

- (a) acquisition of the basic techniques required in the different fields of industry,
- (b) acquisition of the basic knowledge required in the different fields of industry, and understanding of the scientific foundation of industrial techniques,
- (c) acquisition of the knowledge and skill necessary for operation and management in the different fields of industry,
- (d) development of inventive power and cultivation of the power to contribute to the improvement and evolution of industrial techniques,
- (e) understanding of the nature of industrial tech-

niques, the economic structure of industry and its social significance, cultivation of an attitude of cooperation and responsible action, and fostering of the right convictions concerning labor, so as to give the consciousness proper to a man in industry."

Since, however, technical education must respond to the innovations in techniques and conform to the ever changing conditions in industrial society, it must retain a great flexibility. To this end, the following points require constant attention and study, so that the contents of technical education may always be kept up to date:

- (a) analysis of the actual state of Japanese industry,
- (b) analysis of the industry of Japan in its relations to the industries of the world and their mutual interdependence,
- (c) survey of the conditions for the development of Japan's industry,
- (d) research on the program for the future of Japan's industry,
- (e) research on a training program for technicians based on this industrial program,
- (f) determination of the categories, numbers, degrees of skill and knowledge of the technicians to be trained considering the particular conditions of the different branches of industry,
- (g) formulation of an educational program taking into account the above considerations.

Table 1 shows the machine shop course and table 2 the agricultural course of the upper secondary school curriculum.



Table 1

## Machine Shop Course

Subject	10th grade		11th grade		12th grade	
	units	hours	units	hours	units	hours
Japanese	3	105	3	105	3	105
Descriptive geography	3	105	-	-	-	-
World history	-	-	4	140	-	-
Social studies	-	-	-	-	3	105
Mathematics I & II	6	210	3	105	3	105
Applied Mathematics	-	-	-	-	3	105
Physics	3	105	2	70	-	-
Chemistry	-	-	3	105	-	-
Health and physical education	3	105	3	105	3	105
English	4	140	3	105	3	105
Machine shop practice	4	140	4	140	5	175
Drawing	3	105	3	105	4	140
Machine shop theory	3	105	3	105	3	105
Applied dynamics	2	70	2	70	2	70
Prime movers	-	-	1	35	1	35
Factory management	-	-	-	-	2	70
General electricity	-	-	-	-	2	70

Extra-curricular activities	2	70	2	70	2	70
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Total	36	1260	36	1260	36	1260
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Note: 1 unit = 35 hours per year.

Table 2

Agricultural Course

Subject	10th grade		11th grade		12th grade	
	units	hours	units	hours	units	hours
Japanese	4	140	3	105	3	105
Descriptive geography	3	105	-	-	-	-
World history	-	-	3	105	-	-
Social studies	-	-	-	-	3	105
Mathematics I & II	3	105	3	105	3	105
Biology	3	105	-	-	-	-
Chemistry	-	-	3	105	-	-
Health and physical education	3	105	3	105	3	105
English	3	105	2	70	2	70
Crops	2	70	2	70	2	70
Soil and fertilizers	-	-	-	-	2	70
Plant protection	-	-	2	70	-	-

Horticulture (trucking)	2	70	2	70		
Carpentry	2	70	2	70		
Floriculture	2	70	2	70		
Livestock breeding	2	70	2	70		
Processing of farm products	-	-	-	-	2	70
General forestry	2	70	-	-	-	-
Farm mechanics	2	70	2	70	3	105
Farm management	3	105	2	70	5	175
Special farm practice	2	70	2	70	2	70
Extra-curricular activities	2	70	2	70	2	70
Total	36	1260	37	1295	36	1260

Note: 1. unit = 35 hours per year.

(2) Teaching Methods

Whereas the traditional method placed the chief emphasis on classroom lectures which relied mainly on textbooks and the "pick-up method" prevailed in the practice workshop, the postwar period witnessed a great improvement under American influence. The "trade and job analysis" widely used in American schools was introduced and by its wide diffusion served as a means to improve training methods. This method investigates the elements which, in a particular profession, must be taught in school education, then examines in what order and in which way these elements should be taught. In order to serve as a preparatory education

for the future development of industrial society, systematic and logical training method must be adopted. In the above method, a classification of methods according to techniques and a classification of methods according to knowledge are widely used, and on this basis, a lesson plan and an instruction sheet for each subject are prepared, which contribute very much to the effectiveness of the training. Since audio-visual aids are indispensable in vocational technical training, efforts have been made to provide them and the results have been very encouraging.

### (3) Textbooks

Textbooks are usually published by private publishers and written by specialists in the particular fields, mostly by university professors or teachers in professional high schools. They are examined by the Ministry of Education and those which are approved may be used as textbooks. Since, however, there are some occupations with a small number of pupils and private publishers find it financially impossible to undertake the publication of textbooks for which demand is very limited, the Industrial Education Promotion Law has authorized the Ministry of Education to compile and publish textbooks of this kind and a great number of such textbooks have been produced.

### (4) Promotion, Failure and Withdrawal

Since compulsory education includes the lower secondary school, there is no possibility of withdrawal. Except for a few cases in which the financial situation of the family forces a student to quit there are hardly any withdrawals from high school. Only a small number fail to be promoted by reason of excessive absence or failure in scholastic achievements.

## (C) Teaching Personnel

### (1) Demand and Supply

A teacher's certificate, qualifying its holder to be put in charge of technical education, is only issued

to those who have completed the prescribed special subjects in a corresponding special department and have, moreover, fulfilled the credit requirements prescribed for the teaching profession (cf. Laws and Ordinances Related to Industrial Education in Japan, p. 205). In recent years, industrial demand for technicians was very great, and since salaries in the industry are far higher than those in education, it has become very difficult to find teachers for vocational and technical education. For this reason, a special training program has been instituted in a number of designated universities (cf. Statistics on Industrial Education in Japan, p. 22), but actually a great many of the students thus trained go into industry.

### (2) Selection and Training

The usual procedure for selecting teachers is to choose from applying candidates who possess a certificate for the respective course. In the case of prefectural high schools, the selection is made by the prefectural Board of Education, in the case of private high schools, in the way laid down by the founder of the school. But, as just stated, it is difficult to find teachers. Since, moreover, due to the progress of technology, teachers in charge of vocational technical education must incessantly acquire new knowledge and new techniques, state and prefectural authorities have set up a system of scholarships for studying in Japan and all sorts of courses.

### (3) Tenure and Salaries

Since the special nature of the occupation and responsibilities of educators demands a special treatment, the Educational Public Service Special Law regulates their appointment and dismissal, their social status, punishment, duties and training.

The salaries of teachers at state institutions are fixed according to a salary table based on their academic background and years of service. About the same standards are observed in prefectural and other high schools. Moreover, in view of the peculiar nature of

their duties and in order to improve this field of education, a special industrial education allowance is paid to teachers in charge of vocational technical education in addition to their ordinary salaries (cf. Laws and Ordinances Related to Industrial Education in Japan, p. 202).

**(D) Training Program of Technicians**

With the progress of industry in our country, the demand for technicians has increased from year to year and supply has not been able to catch up. Demand has been particularly urgent in the fields of mechanical, electrical and chemical engineering. In order to induce schools to add new courses in these fields, the state has shouldered part of the expenses necessary for such new additions. The increase in students during fiscal 1958 and 1959 came to about 10,000. The manner of calculating the demand for technicians having completed secondary industrial education is generally the same as that in Chapter 2, IV, B (Method of Measuring New Demand for Scientific Technicians).

**Reference Materials:**

Education in Japan, 1959

History of Industrial Education in Japan 1868 - 1900

Industrial Education in Japan, Series I: Development of Industrial Education in Japan

Industrial Education in Japan, Series II: Statistics on Industrial Education in Japan

Industrial Education in Japan, Series III: Laws and Ordinances Related to Industrial Education in Japan.

Chart 1. THE SCHOOL SYSTEM

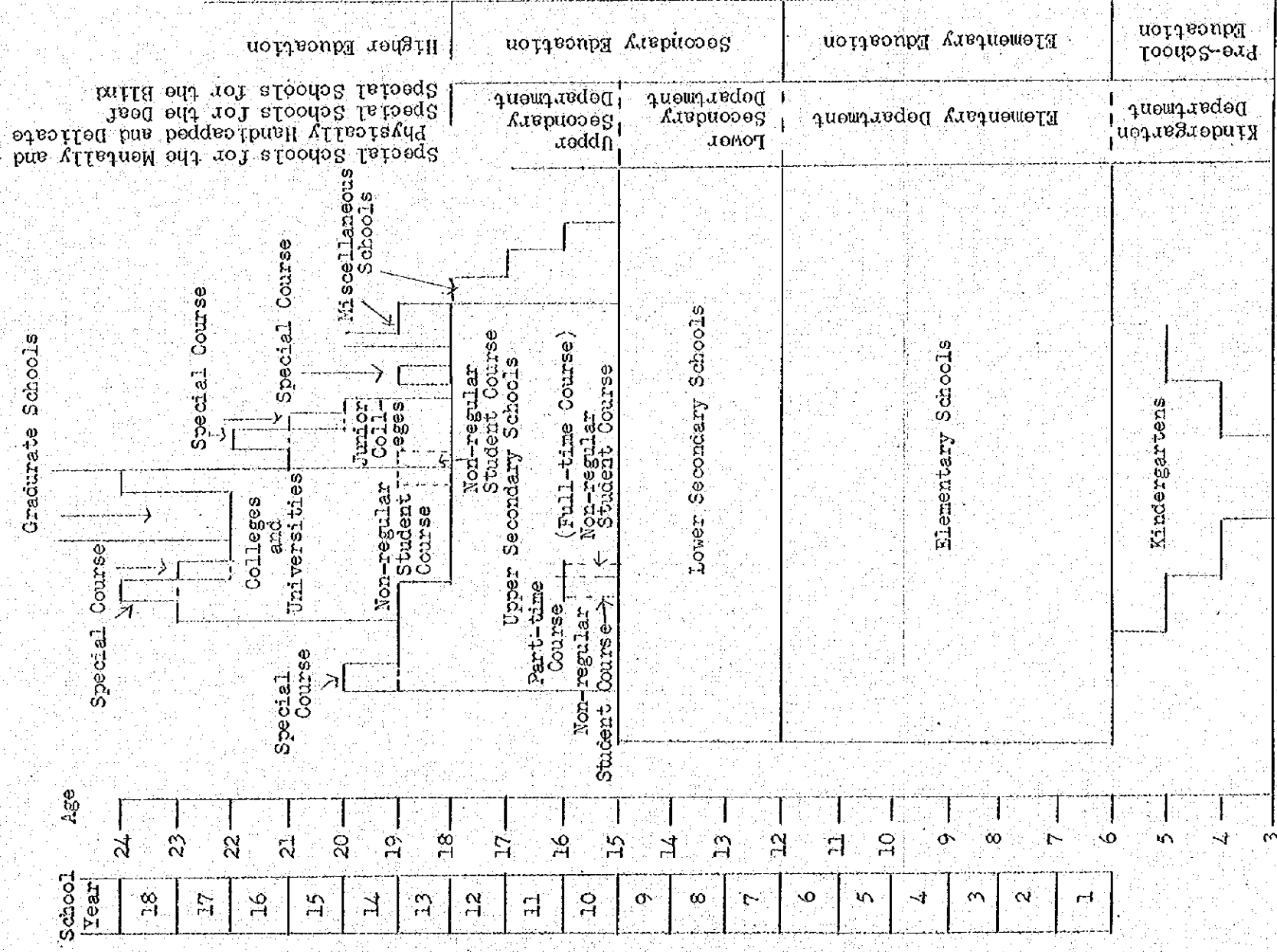


Chart 2. Competent Agencies in charge of  
Different Types of Vocational Training

1. Vocational Education in School	<ul style="list-style-type: none"> <li>Lower Secondary School (Vocational course)</li> <li>Upper Secondary School (Vocational course)</li> <li>University (Vocational &amp; College course)</li> </ul>	} Ministry of Education
2. Vocational Training performed by public facilities	<ul style="list-style-type: none"> <li>Public vocational training center</li> <li>General vocational training center</li> <li>Public vocational training center for physically handicapped persons</li> <li>Others</li> </ul>	} Ministry of Labor
3. Vocational Training performed by enterprises	<ul style="list-style-type: none"> <li>Apprenticeship</li> <li>Supplementary training, Retraining,</li> <li>Foreman Training</li> <li>Vocational Training within Industry</li> <li>Management Training Program</li> <li>Others</li> </ul>	} Ministry of Labor  Ministry of Labor Ministry of International Trade and Industry
4. Other Educational Training	1. Training in accordance with laws and regulations (a) Training which has connection with the granting of qualifications prescribed by laws and regulations	



Training in  
short term

Supplementary course  
attached to Seamen's  
School (3 months,  
certificate of compe-  
tence for surfman  
certificate of  
competence for  
deck worker).

Ministry of  
Transportation

Special course attached  
to Aviation University  
(3-6 months, education  
necessary for acquire-  
ment of qualification)

Divers Training School  
(qualification of  
applying for examina-  
tion of divers)

Peace Preservation  
Techniques Training  
Center

Ministry of Interna-  
tional Trade and  
Industry

Supplementary course  
attached to Training  
Center of Tech-  
nicians for Geographi-  
cal Survey Station  
(Surveyor)

Ministry of  
Construction

Health Nurse Training  
Center (more than  
6 months, acquire-  
ment of qualifica-  
tion for the examina-  
tion)

Midwife Training Center  
(more than 6 months,  
acquisition of qualifi-  
cation for the exami-  
nation)

Training in  
long terms

Nurse (Associate nurse)  
Training Center (Nurse, in  
case of more than three  
years, acquirement of  
qualification for the  
examination).

Training Center of X-ray  
technicians for examina-  
tion and treatment, in  
case of more than two  
years, acquirement of  
qualification for the  
examination.

School of Dental Hygiene  
(in case of more than  
one year)

School of Dental Techni-  
cian (in case of more  
than three years).

Training School for  
Massage, acupuncture,  
moxa, jujutsu reduction.  
(in accordance with  
qualification when  
entered, two years and  
half or five years.)

Training Institute of  
Nutritionists (in case  
of more than two years,  
acquirement of license)

Ministry of  
Welfare

Training Institute of Barbers and Beauty culturists; (in case of one year in daytime, one year and four months in night and two years in correspondence, acquirement of qualification for the examination)

Regular Course of Aviation University (The students who finished two years, are deemed to have qualification as pilots for business transportation)

Ministry of Transportation

Regular Course of Seamen's School

Regular Course of Training Center of Technicians for Geographical Survey Station (one year, Associate Surveyor)

Ministry of Construction

(b) Training which has no connection with laws and regulations.

Inter-service Training Center for Hospital Administration attached to National Public Health Institute

Ministry of Welfare

Training in short term

National Center of Rehabilitation of the Disabled and other social welfare facilities

Training Course of Navigation School

Ministry of Transportation

	Training Center of Industrial Technicians for Agricultural District	Ministry of Agriculture and Forestry
Training in long term	Training Center of Industry for Agricultural District (one year)	Ministry of Welfare
	Training Center of Fisheries	
	Training Institute of Stockraising Techniques	
	Farm for Administrative Training (one year)	
	National Public Health Institute (one year, three months for special course)	
	Correspondence Course for Navigation (higher course; one year, ordinary course; four years)	Ministry of Transportation
	Training Center of Librarians	Ministry of Education

(c) Other trainings

Training exercised in reformatories and prisons	Ministry of Justice
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2. Training not based on laws and regulations

Bodies of Youths for Rural Construction	Ministry of Agriculture and Forestry
Bodies of Youths for Industrial Development	Ministry of Construction

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Chart 3. ORGANIZATION OF EDUCATIONAL ADMINISTRATION

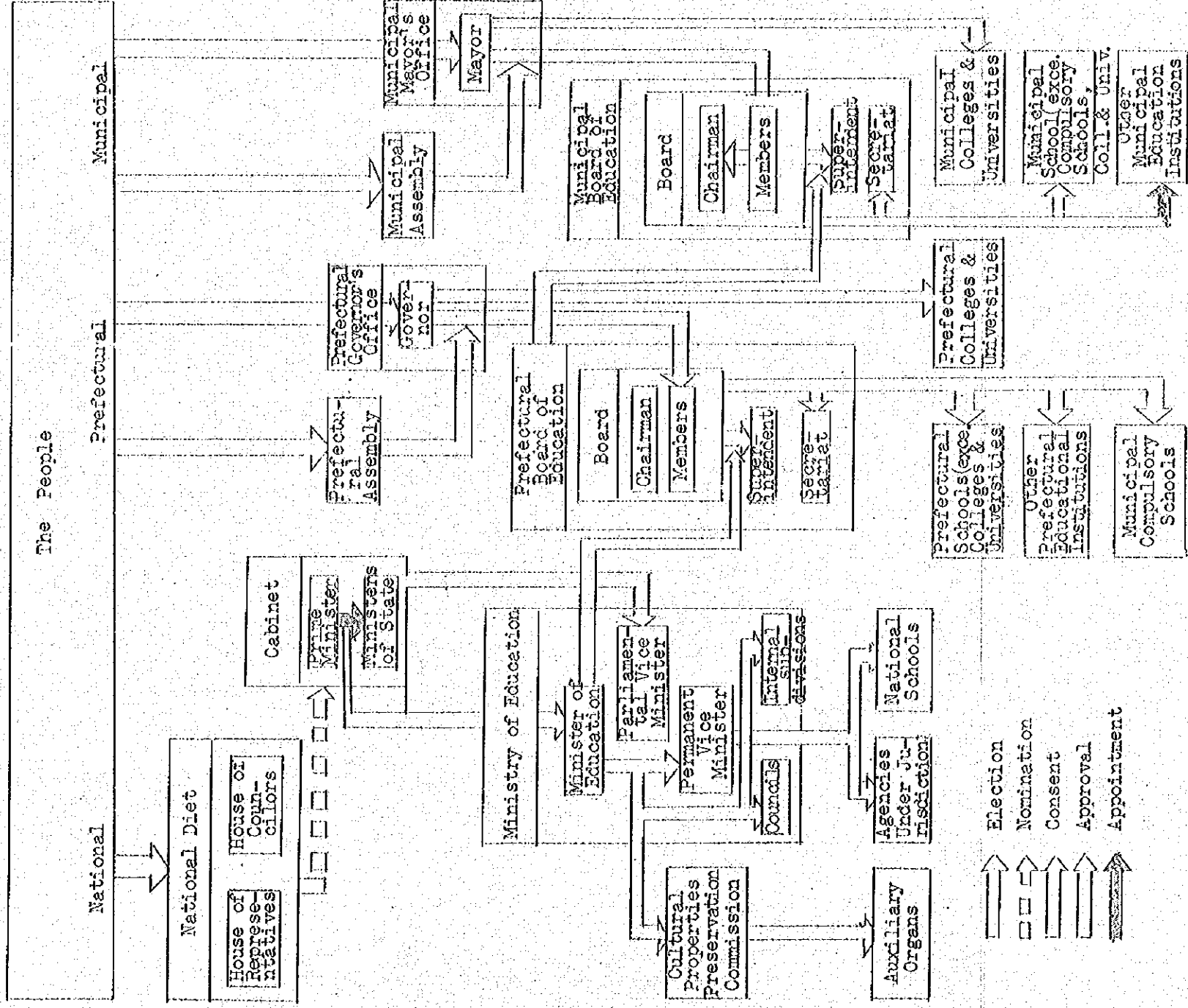




Chart 4. OPERATING RELATIONSHIPS OF NATIONAL EDUCATIONAL AGENCIES

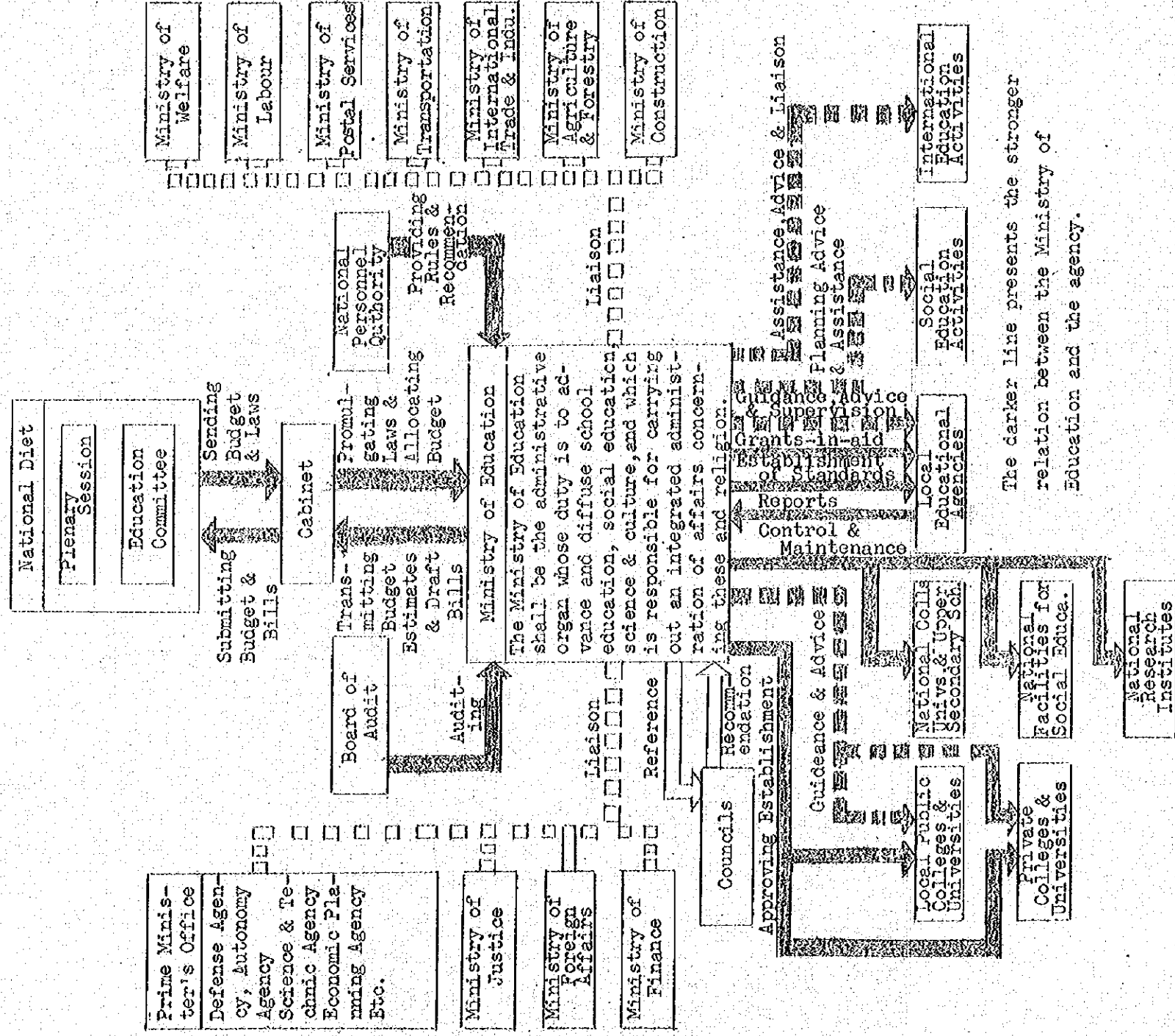


Chart 5. ORGANIZATION OF THE MINISTRY OF EDUCATION

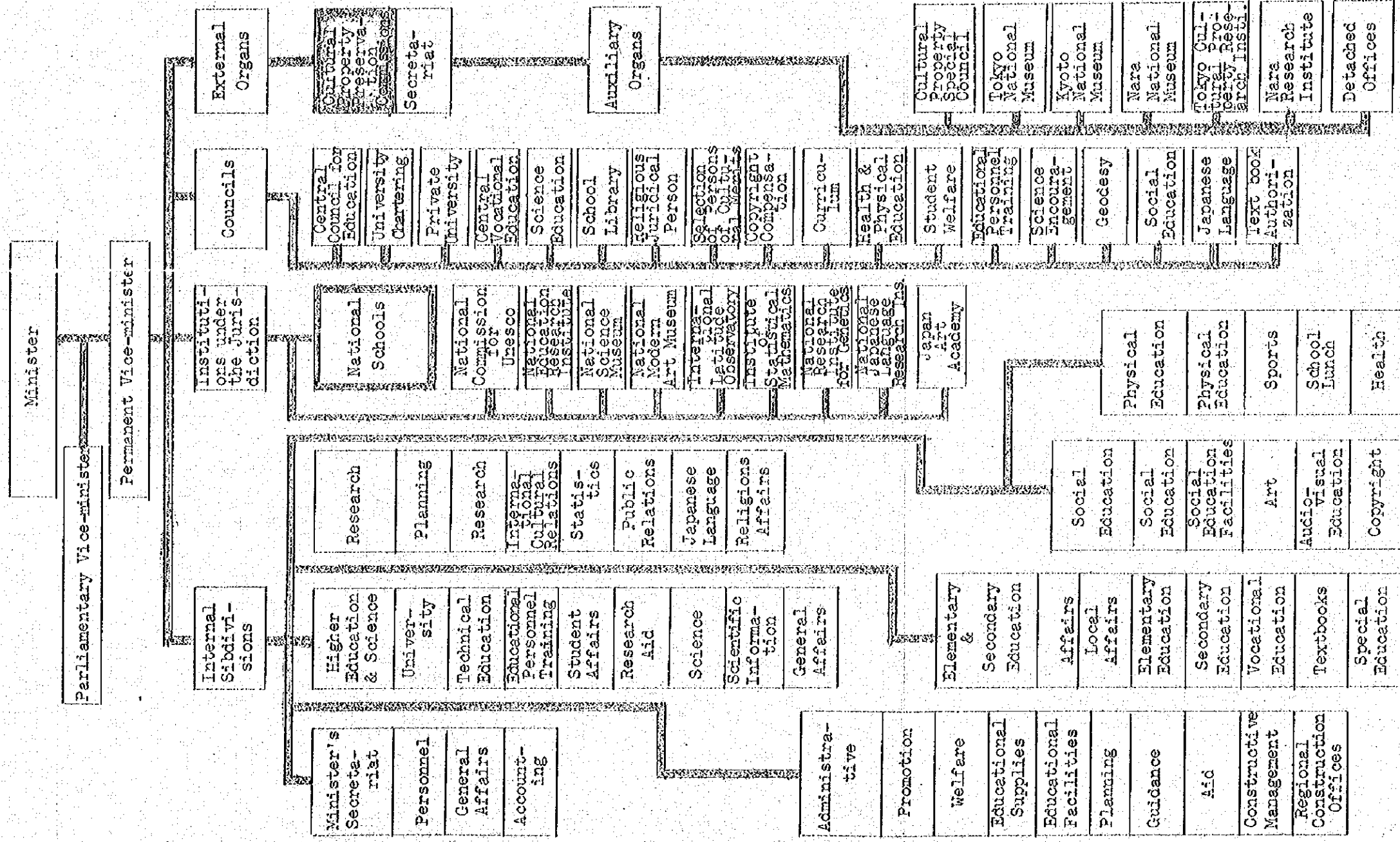
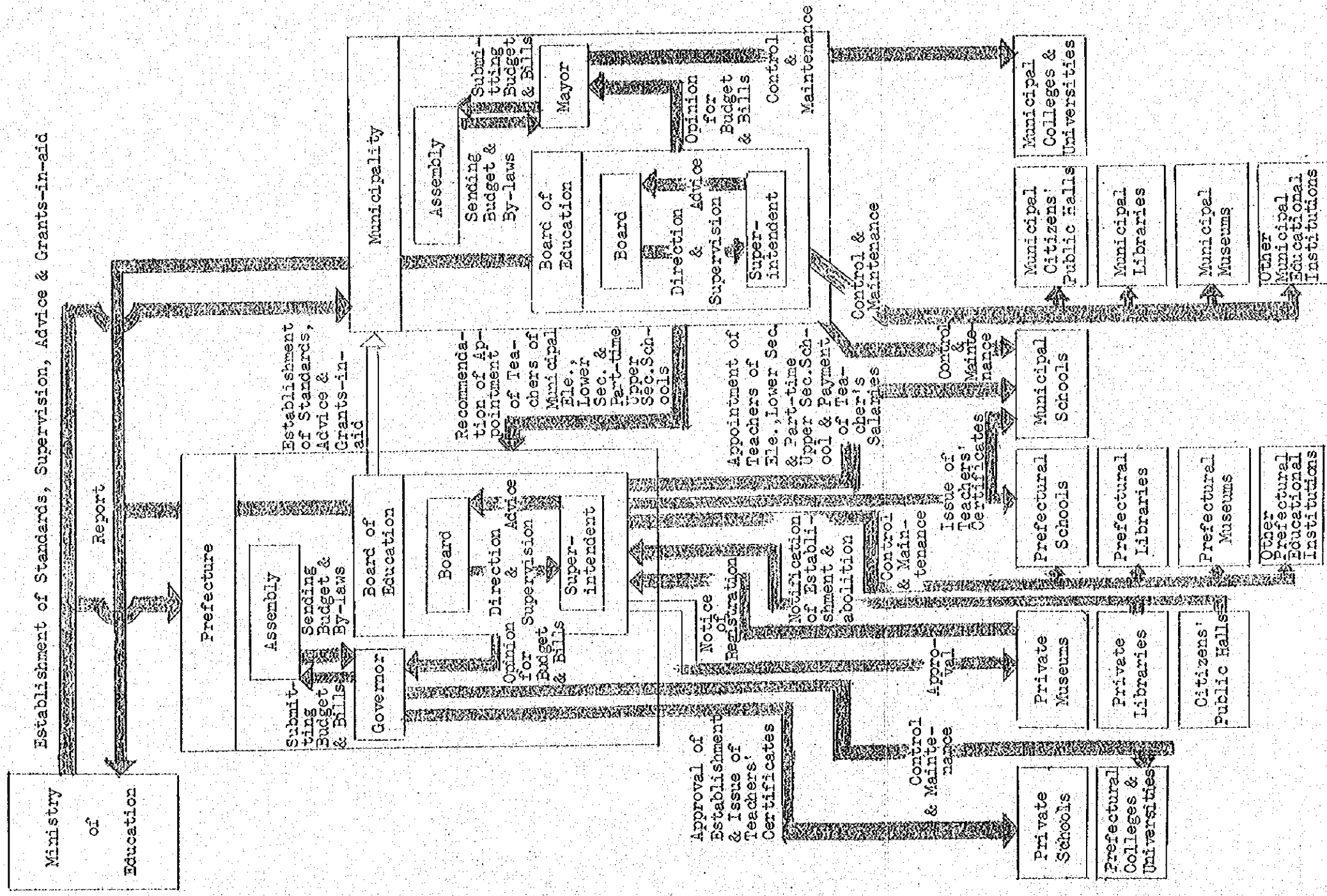


Chart 6. OPERATING RELATIONSHIPS OF LOCAL EDUCATIONAL AGENCIES



## 1. Structure and Legislation

Vocational and technical education is dated relatively recent in Laos. In spite of a creation going back to 1923 in a capital, there are only two centers, one situated in Vientiane, and the other in Savannakhet. For a psychological reason and of the economy of administrative personnel these centers are actually attached to the secondary establishment of these two cities and there form the technical sections.

All the structures and legislations of technical education are actually under examination and the findings thereof will be included in a basic law. A Ministerial suspension of 30 April 1959 has just reached 3 years under the examination.

## 2. Determination of the Needs for Vocational and Technical Education

The country being full of evolution has the increasing needs for specialised labours. This labour is, as a matter of fact, actually supplied in a great degree by the foreigners. Therefore, one provides for the extension of actual centers and the creation of new technical and artisanal centers in the principal cities of Royalty. This leads to:

- (1) The necessity of obtainment and or the formation of teaching personnel and of monitors.
- (2) The new and adapted constructions.
- (3) The necessary material to these extensions and creations.

## 3. Relations between Vocational and Technical Education and: General Education, Higher Education, Labour Market, Professional Associations, etc.

At present, vocational and technical education is administered by the Division of Higher and Secondary education of National Education. The courses of general education are given by the French and Laotian professors detached by secondary establishment of the state. This present fusion of technique in a whole teaching is due to the necessity of valoriz-

ing the technical studies and of assuring the orientation of the young men towards the studies little appreciated yet.

Technical education has not yet attained a development justifying the relations with a higher education. However, they provide for the successive creation of an industrial certificate (brevet industriel) and later a technical baccalaureat.

There are connection with the professional associations and labour market in order to determine the need of the specialised labour. Vocational and technical education also follows from the big plan of economical development and from the setting of value of the country (Project of Mekong, setting of value of a sub-soil, a quinquennial plan, etc.) in order to permit the formation of necessary personnel for the expansion of these projects and activities.

#### 4. Selection and Guidance of Students

Actually the students are recruited among the young men who have received a complete primary formation, but in general, at a standard distinctly inferior to those required by the entrance examination for the middle schools and high schools as well as the normal schools. The government actually launches a campaign for propagation to encourage the young to guide themselves towards technical education. They also anticipate that a recruit will soon be facilitated by setting a guidance class at the end of the second cycle of primary education.

In an existing frame, the first year of study is the year of preapprenticeship trying to let the students choose their speciality in which they are much talented. From the second year the students receive the training in the chosen speciality.

#### 5. Courses Offered

In a present condition we had to limit the offered courses to following specialities: joiner work, general mechanics and electricity. We provide for the opening of the following sections to enter into society: automobile machinery, and masonry-building. Gradually the other technical and craftsmen's

sections will be enlightened, if we take its possibilities into account.

#### 6. Teaching and Administrative Personnel

The teaching personnel actually includes the French technical professors assisted by the Laotian professors in their tasks. The personnel of a general education includes the professors above mentioned in Paragraph 3. The administrative personnel is that of a secondary education.

A project under study foresees the training of the Laotian technical professors in different specialities.

An expert is also dispatched by UNESCO for setting of programs.

#### 7. Conditions of Personnel

This national personnel actually includes only the monitors in joiner-work, electricity, etc., as well as the young elementary school teacher having profitted from a probation at the National normal school or apprenticeship in Paris in a quality as the student-professor of a general education.

The recruit, remuneration of personnel will be the same, at an equivalent standard, as the masters of a general education.

#### 8. Buildings and Equipment

The present two centers are lodged in the well adapted building and are furnished by a convenient and relatively modern equipment.

#### 9. Textbooks and Documentation

On a whole the textbooks and documentation aimed at the instruction of the students are sufficient in numbers and sufficed from the foreign origins. They provide, thanks to UNESCO, the textbooks and documentation adapted to the country and to the national language.

#### 10. Audio-visual Aids

The two centers are aided by the audio-visual materials (The machines of projection fixed and mobile, as well as of recording and of broadcasting).

Unfortunately the excellent films and tapes in technics are mostly in English. Consequently they are limited in utilization. The professors and the experts envisage the adaptation on the magnetic tapes.

#### 11. Statistics.- (see Annex)

#### 12. Inspection and Control

At present there are no inspectors for technical inspection in Laos. Nevertheless, the French professors are inspected and controlled by their national superior.

#### 13. Finance (National budget - see Annex)

In addition, the technical education is aided, on the supplies and equipment, by French and American aids and by Colombo plan, while the personnel is aided by French.

STATISTIC TABLE  
OF PRIMARY EDUCATION IN LAOS

- Elementary cycle : 3 years of studies
- Complete cycle : 6 years of studies

1947-48	:	31,543	students	:	
1948-49	:	36,716	"	:	- 398 Certificates of primary
1949-50	:	38,593	"	:	- 504 studies
1950-51	:	32,879	"	:	- 396
1951-52	:	36,904	"	:	- 520
1952-53	:	41,412	"	:	- 638
1953-54	:	33,357	"	:	- 619
1954-55	:	43,274	"	:	- 635
1955-56	:	63,950	"	:	- 740
1956-57	:	75,167	"	:	- 1,225
1957-58	:	77,204	"	:	- 1,630
1958-59	:	95,957	" (1)	:	
			" (2)	:	

(1) Including 697 students of primary classes so far connected to the lycee in Vientiane

plus 5,102 students of private schools

would be 101,059 in total

(2) According to provinces

Vientiane	20,940	Saravane	5,563
Savannakhot	14,514	Kiangkhouang	5,555
Paksé	11,824	Sayaboury	5,536
Luang-Prabang	9,507	Attapeu	2,953
Thakkek	9,216	Namtha	2,848
Sammoua	5,981	Phongsaly	1,520



STATISTIC TABLE

OF SECONDARY EDUCATION IN LAOS

	Primary cycle: (1) 4 years	Diplome of the end of study	Second cycle (2) 3 years	Baccalaureat complete	Effective total
1948-49	430	28	23		453
1949-50	561	21	32		593
1950-51	694	69	52		746
1951-52	705	61	89		794
1952-53	783	122	111		894
1953-54	1,062	114	148		1,210
1954-55	1,089	126	141	18	1,230
1955-56	1,229	137	157	27	1,386
1956-57	1,547	118	170	20	1,717
1957-58	1,794	117	200	25	1,994
1958-59	1,958		236		2,194 (3)

(1) 1st cycle:	Vientiane, Lycée	725	(2) 2nd cycle:	236
	Normal School	256		
	Luang-Prabang	180		
	Thakkek	159		
	Savannakhet	269		
	Paksé	248		
	Kiang-Xhouang	121		
		1,958		236

(3) There is a room to add:

School of administration	87
School of medicine	18
Technical sections	103
	208

(Vientiane-Savannakhet)

COMPARATIVE TABLE OF SCOLARISATION

1. Countries fully developed:

Population; Primary effectives; Secondary effective

SWITZERLAND  
1953-54 : 4,978,000 : 553,475 : 98,605; 17.8% of  
11% of the primary effective  
population

FRANCE  
1954-55 : 43,000,000 : 4,920,736 : 1,000,922  
11.4% of the 20% of primary  
population effective

1 collegian p.5 pupils

2. Countries in full effort of scolarisation

THAILAND 1956 : 20,686,000; 3,091,101 : 335,063  
10% of Primary  
effective

1 collegian p.9 pupils

3. LAOS 1958-59 : 2,000,000: 101,059  
5% to 3.3% : 2,392  
to 2.4% of Primary  
effective

3,000,000

1 collegian p.40 pupils

NATIONAL EDUCATION

NATIONAL BUDGET

FINANCIAL YEAR 1958/59

<u>MINISTRY:</u>	<u>Personnel</u>	<u>Material</u>	<u>Total</u>
Cabinet	1,660,380	889,800	2,550,180
Primary	7,135,000	263,350	7,398,350
Secondary	3,442,400	556,350	3,998,400
Literary Committee	626,500	513,000	1,139,500
Scholarship and home for the foreigners		1,196,236	1,196,236

Primary education

Kindergarden	1,130,350	1,081,800	2,212,150
Primary school	12,913,623	735,131	13,648,754
School of dance	1,130,050	286,250	1,416,300
School of house keeping	603,600	191,250	794,850

Secondary education

			<u>Scholarship *</u>
Lycée	2,188,500	10,657,700	of which 5,040,000
Normal school	656,500	4,624,300	" 3,740,000
Colleges	967,200	4,592,600	" 5,411,000
Technical sections	1,021,300	1,779,500	" 1,170,000
School of administration	2,006,780	1,494,200	" 1,225,200
School of medicine	848,040	1,345,000	" 1,025,000
	15,255,280	47,388,410	15,611,200

\* Total

12,846,200
5,280,800
5,359,800
2,800,800
3,500,980
2,193,040
<u>19,994,124</u>

New work provided to the report of dpt. of T.P.  
(those provided 1957 have not received any starting of  
execution)

9,400,000

National budget .....	139,272,4700	Kips
Education .....	19,994,1240	Kips
would be	14.3%	
PM in 1957	12.4%	
In 1956	11.4%	

M A L A Y A

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## 1. Legislation

The Federal Legislative Council appointed a Special Committee under the chairmanship of the Hon'ble Minister for Education, Dato Abdul Razak to make recommendations for the establishment of a national system of education acceptable to the people of the Federation of Malaya. On the recommendations of the Special Committee, the Federal Legislative Council passed the Education Ordinance 1957 designed to meet the needs of the various races of Malaya in their cultural, social, economic, and political development and making Malaya, the national language of the country.

Some of the important aspects of the report are:-

- (1) The Education policy in general is to be directed by the Minister of Education who will be responsible for secondary education and teacher training.
- (2) Local Education Authorities to be established and to be responsible for primary and trade education.
- (3) Radical re-organisation of the teaching profession.
- (4) Establishment of a Board of Governors for all schools.
- (5) Establishment of an independent Inspectorate.
- (6) Introduction of the Lower Certificate of Education and the Federation of Malaya Certificate of Education in all secondary schools.
- (7) Re-organisation and development of technical education.
- (8) Provision for post-secondary, further and part-time education.

A Board of Education with members from political and professional organisations was established to advise the Minister of Education on all matters connected with education.

## 2. Structure of Technical Education

Technical education in the Federation of Malaya has been reorganised to cater at four levels.

(1) Post primary level - Rural Trade Schools.

These schools provide a two-year course of training in Mechanical and Building trades as applicable to rural areas, the teaching medium being the national language. Six such Rural Trade Schools have been established at various centres in the Federation and a further two are to be built this year.

(2) Secondary Level - Technical Institutes.

These are open to pupils who have completed the first three years of secondary school education and who have obtained the Lower Certificate of Education with a pass in Mathematics and General Science. The course extends over a period of three years and caters for those who intend to seek employment as technicians in government or private industry on completion of the course. The Junior Technical (Trade) Schools are being gradually converted into Technical Institutes.

(3) Post Secondary Level.

(a) Technical College.

This College provides Diploma courses in the different branches of engineering for students who have completed a full secondary education.

(b) College of Agriculture.

The government provides Diploma and Certificate courses at the College of Agriculture. The Certificate courses, extending over a period of two years, are also conducted at various centres in the Federation to train Junior Agricultural Assistants. The Diploma course conducted at the College of Agriculture provides a three year course after a full secondary education. The graduates are employed as Agriculture Assistants in Government and industry.

(4) University Level - Faculty of Engineering.

A two-year post-school certificate course in Form VI leading to a full Higher School Certificate in the appropriate science subjects is essential for entry to the 4 year Civil Engineering Course at the University of Malaya. The University grants a B.Sc. degree in Engineering and the graduates are appointed to the professional scale of the public service being exempted from parts I and II of the Institution of Civil Engineers Examinations.

(A) Practical Subjects in Secondary Schools.

A number of secondary schools in the Federation of Malaya now provide courses in Woodwork, Metalwork and Technical Drawing designed to meet the requirements of the Overseas School Certificate Examinations. All such schools have fully equipped workshops to the required standards. The Vocational Teachers Training Centre provides courses in Woodwork and Metalwork for qualified teachers who have an interest in teaching practical subjects in Secondary Schools. The course covers instruction in technical drawing, general methods of teaching handicraft and specialising either in Woodwork or Metalwork. The duration of the course is one year.

(B) Central Apprentice Board

The Central Apprentice Board is at Federation level and Tripartite in structure consisting of representatives of Government, employers of apprentices (government and private) and workers. The pilot apprentice scheme started in the State of Selangor in January, 1957 is to be extended to Perak and Penang this year. The existing "declared" apprenticeship courses are in the mechanical, electrical, trades and two additional trades in the electrical group for (i) Radio Mechanics, (ii) Refrigeration and Air Conditioning are likely to be "declared" trades this year. An I.L.O expert is now studying the feasibility of introducing apprenticeship training in the Building Industry and it may start with the painting and decorating trades.



The minimum standard of education required for entry into apprenticeship for the present is completion of Primary education with age limits ranging from 16 to 21 years. The normal apprenticeship period is 5 years and over this term the apprentices are given approved trade instruction by the employer which is further supplemented by theoretical instruction at the Technical Institutes for four hours per week provided by the Ministry of Education and the Railway Administration. At this state classes are conducted in English but arrangements are being made for instruction in vernacular languages and instruction notes are being translated into the National Language.

A certificate of Proficiency is to be issued by the Board to all apprentices who successfully complete their apprenticeship and attain the Board's standards. Appendix I shows the progress of the Central Apprenticeship Board since its inception.

(C) Evening Classes

Evening Class in technical subjects are held under the Further Education Programme in the various Technical Institutions of the country to provide part-time technical education at various levels, for those already in employment. These evening sessions are held on week-days and includes practical training in the workshops. Enrolment by subjects is shown in Appendix II.

(D) Relation between Vocational and Technical Education etc.

A chart showing Technical education in the Federation of Malaya with possible venues of employment and advanced studies is shown in Appendix III. Pupils with a full primary education and an aptitude for trade studies are enrolled in the Rural Trade Schools and given training in Machine Shop Work, Welding, Blacksmithing, Carpentry and Bricklaying. Whenever it is not possible to provide the necessary theoretical instruction, the Central Apprentice Board have a programme to institute correspondence courses with provision for the apprentices to work four hours of week during their normal working hours on these courses. On securing a Certificate of Proficiency

from the Board they may be employed as skilled artisans in the industry.

Entry qualifications to the Junior Technical (Trade) Schools which are now being gradually converted into Technical Institutes, vary with the courses provided, requiring a pass in Standard VI Malaya or English for the Mechanical and Building trades and a Lower Certificate of Education for Electrical, Radio and Plumbing trades. The age range for admission to all courses varies from 14 to 18 years. On the successful completion of the three year course of training at the Junior Technical (Trade) Schools the pupils are employed as apprentices in the various industries and subject to passing a trade test at the end of the third year of apprenticeship they are employed as Junior Technical Assistants or Technicians with Government or industry.

Two of the former Junior Technical (Trade) Schools have now been converted to Technical Institutes and the remaining two will follow with the establishment of new Rural Trade Schools in the area.

Although the primary purpose of the Technical Institutes is to turn out apprentice technicians, the curricula has been designed to include compulsory academic subjects plus technical subjects so as to provide the pupils with a good technical education leading to the Federation of Malaya Certificate of Education. Subject to the required entry qualifications, these students may be admitted to the Technical College in one of the Diploma Courses. Evening Classes are conducted at the Technical College at various levels in their respective subjects and students are prepared for the City and Guilds of London Institute Examinations and the Professional Institution Examinations if the enrolment justifies.

The Technical College in Kuala Lumpur is the only institution of its kind in the Federation of Malaya providing courses in Civil, Electrical, Mechanical, Radio, Land Surveying and Architecture leading to a diploma which is accepted as a qualification for entry into government technical departments at Division II level in the Federation of Malaya, Singapore, Brunei and Sarawak. Minimum

entry qualification are a Division II Cambridge Overseas School Certificate or a Federation of Malaya Certificate of Education with credits in English Language, Mathematics and General Science.

The Diploma Course are of three years duration but government sponsored apprentices are required to put in an additional year of field training with their departments between their second and final years. On the recommendations of the Special Committee appointed the Federal Government to consider the future use of the Technical College, the government accepted that the College should cease to be a pre-service training centre and should become a training institution open to all suitably qualified persons and providing courses of a varied nature leading in some cases to professional qualifications. The first step towards the implementation was the introduction of Evening Classes to prepare students for the Joint Part I of the Institution Examinations.

The Diploma Course in Architecture has now been accepted by the Royal Institute of British Architects and students of the College are permitted to take the Inter R.I.B.A. Examination at the end of their 3 year Diploma Course. It is hoped to extend the course to the Final of the R.I.B.A. examination in the near future. A number of the Technical College students have been sponsored to student membership of the Professional Institutions and at some stage in their career they could become Corporate Members of the Institutions.

Besides the Diploma Courses, the College also undertakes to train motor Transport Inspectors and Mining Assistants based on a sandwich system of training.

There is a great demand for men trained in the Technical Institutes and Technical College both in the government and industry and while every effort is being made to increase the numbers in training there are still a number of vacancies in the various departments which remain to be filled.

### (E) Selection and Guidance of Students

Students for the various technical institutions are generally selected by the Heads of the Institutions on the advice of a small panel of experts representing the Technical Departments and Trades. Potential students to the Rural Trade Schools may be subjected to a simple trade test and since Rural Trade Schools have not yet been established in every state of the Federation of Malaya, wherever such schools exist, a quota of the enrolment is reserved for allocation to students from states where no such facilities are available. Selection to the Technical Institutes is on very similar lines but preference is given to students who display an aptitude for vocational subjects in their primary and lower secondary education. Students for government apprenticeships are selected by the Public Services Commission or by Committees to whom the P.S.C. delegate their powers. This particularly applies to apprenticeship in the Technical College where approximately 80% of the students are government sponsored.

To serve as a guide for students intending to take a technical career, the headmasters of secondary schools generally arrange for talks to be given by Heads of Technical Institutions and Departments and this is sometimes extended to conducted tours of the Technical Institutions. The Technical College and the Technical Institutes hold exhibitions of their work annually and during this period the Institutions are kept open to the public. The scope of this publicity may be limited to some extent to centres where such facilities are available but nevertheless it is a step in the right direction.

### (F) Courses Offered

The Courses offered at the various centres have gene-

rally been discussed earlier under the separate institutions and Appendix IV shows the enrolment at the various centres by courses.

#### (G) Teaching and Administrative Personnel

##### Selection and Training

All technical institutions in the country now function under the management of a Board of Governors. The constitution of the Boards for the separate institutions are shown in Appendix VI. The Rural Trade Schools have generally been staffed with graduates of the former Junior Technical (Trade) Schools, a few of whom have had industrial experience. The Headmasters while having been recruited from among the senior men of the same category have invariably been sent overseas on teacher training courses under the Colombo Plan either to the United Kingdom, Australia or New Zealand for a period of a year. Some of these scholarships have been further extended for a period of a year to give industrial experience or for the study of advanced teaching methods and such men on their return have been posted as Senior Instructors in the Technical Institutes. A number of graduates of the Technical College are on the technical staff of the Institutes while some are still undergoing training at the College in Civil, Mechanical and Electrical Engineering, following the Diploma Courses. The Diploma Course will be followed by practical experience in industry and a period of teacher training. Considerable assistance has been given to this country in advancing technical education by Colombo Plan countries, Unesco and I.L.O. both in the form of equipment and books and through the invaluable services of experts from Canada, U.K., Australia and New Zealand.

The policy on the recruitment of teaching staff to the Technical College has been radically changed since the acceptance of the Report on the future use of the Technical College. All appointments are now made on the professional scale of the Public Service and technical lecturers should hold a recognised degree or diploma or be corporate members of the professional institutions;

## (H) Buildings and Equipment

Six new Rural Trade Schools have been built since the implementation of the Education Report and an additional two are to be built this year. The buildings are of modern construction and consist of an administration block, class rooms, mechanical and building workshops and hostel accommodation for 60 students in dormitories. They have been built at a cost of approx. \$300,000/= each and a further sum of approx. \$200,000/= has been expended on equipment. The workshops are well equipped for their own cupboards or carry out minor extension to their buildings connected with brickwork and concreting.

The Junior Technical (Trade) Schools which have been in existence for a number of years are still housed in their old buildings but extensions have been made to meet the growing needs of technical education. Two Junior Technical (Trade) Schools have since been converted into Technical Institutes and in one instance the new buildings, alteration to the Electrical Installation, Plumbing and Steelwork was completely undertaken by the students under the direction of the staff. These institutions have a wide variety of workshop equipment including shops for the electrical trades. A good number of technical books on trades have been presented by the Canadian, Australian and United States governments to these institutions and in some cases these have been extended to film strips and minor equipment.

The Technical College in Kuala Lumpur is accommodated in new buildings erected on a 47 acre site with \$4.88 million dollars provided by the Colonial Development and Welfare Fund for building and equipment. The buildings compose of an administration block, a hall, teaching blocks, lecture theatres, a library, laboratories, workshops and hostel accommodation for 500 students in single and double rooms with various amenities such as Tennis and Badminton Courts, a large dining hall and recreation rooms. The College has well equipped laboratories and workshops, and satisfies the requirements of professional institutions for approved laboratory work. A considerable portion of the Electrical and Heat Engines laboratories were donated by the Australian Government under the

Colombo Plan. The Chemistry and Physics laboratories are equipped to take students to the principal level of the Higher School Certificate. A list of the main equipment in the various laboratories is shown in Appendix V.

(I) Textbooks and Documentation

At this stage no standard text-books are being used by the students for technical subjects either in the Rural Trade Schools, the Junior Technical (Trade) Schools or the Technical Institutes. The curricula and the syllabus have been laid down and the instructors provide their own notes for instruction. A Correspondence Unit has now been established under the Ministry of Education and this is being organised by an officer who has been on a six months course on correspondence instruction under the Colombo Plan. In the course of the preparation of Correspondence Courses, the Unit has undertaken the documentation of notes in the various trades which are being made available to the Trade Schools and Technical Institutes.

The educational system adopted in the Technical College varies widely from the form of instruction given in the Technical Institutes. Certain standard technical text-books are recommended but the students attend lecturers, take their own notes and supplement them with additional knowledge gained from a wide range of books available from the College library. Tutorials and course work are given in some subjects.

(J) Audio-visual Aids

With the exception of the new Rural Trade Schools, all the other technical institutions have been provided with sound and slide projectors and have film strips on subjects generally dealing with mechanical and building trades.

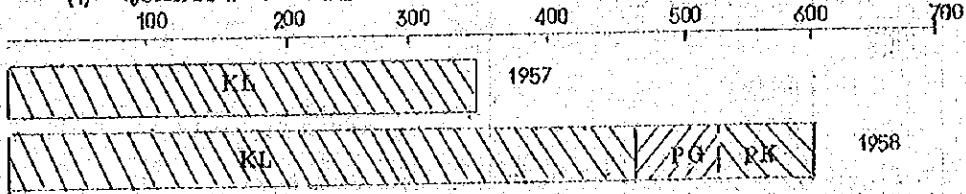
In pursuance of the declared policy of the government to encourage the setting up of industries in the Federation of Malaya, every effort is being made to turn out technical men at all levels so that when the occasion arises, this country will not be found lacking the much needed technical skill.



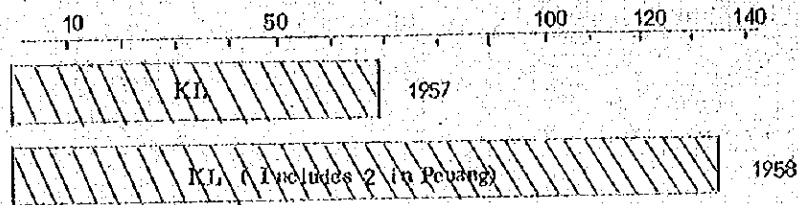


GRAPHS SHOWING PROGRESS OF CENTRAL APPRENTICESHIP BOARD'S SCHEME

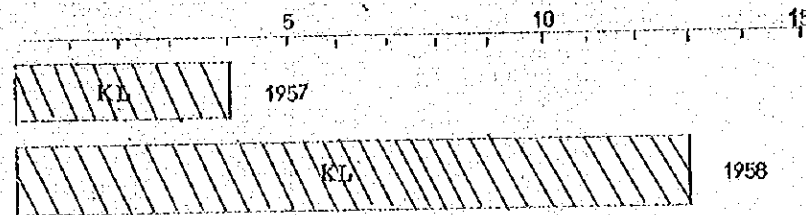
(1) QUALIFIED APPLICANTS AWAITING APPRENTICESHIPS



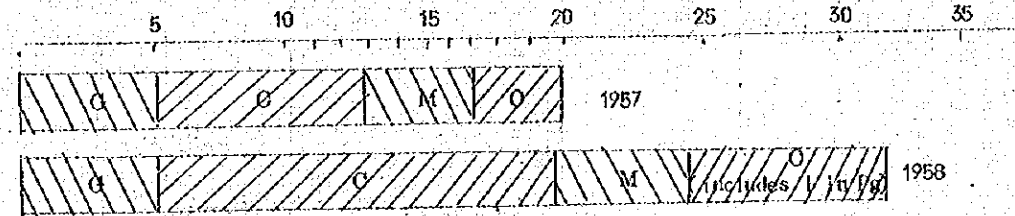
(2) APPRENTICES REGISTERED



(3) CONTRACTS CANCELLED

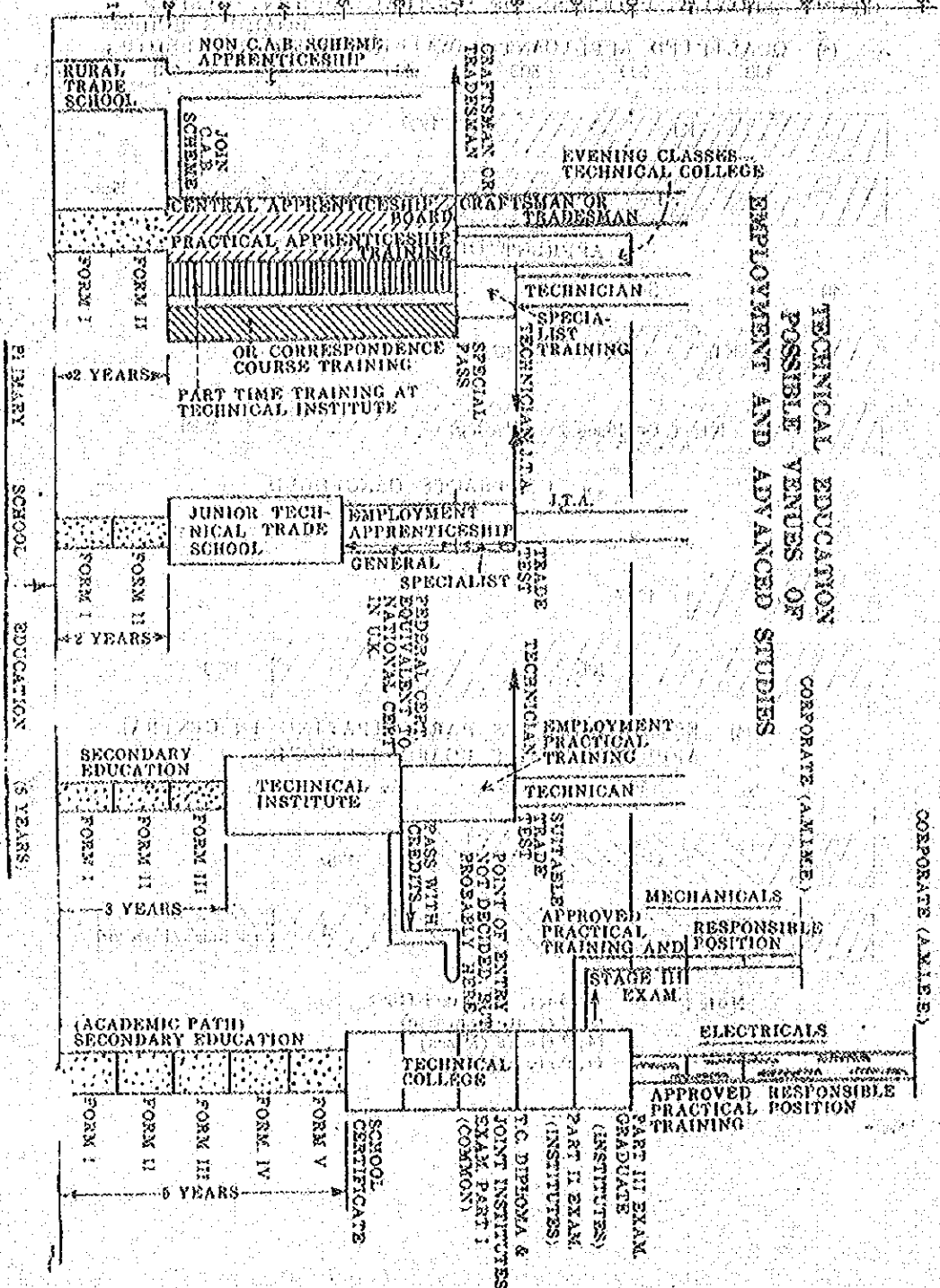


(4) ESTABLISHMENTS PARTICIPATING IN CENTRAL APPRENTICESHIP BOARD'S SCHEME



Note: G, Govt. & Quasi-Govt.  
 O, Private (chinese)  
 M, Private (Mines)  
 O, Private (others)

Y E A R S



TECHNICAL EDUCATION  
POSSIBLE VARIETIES OF  
EMPLOYMENT AND ADVANCED STUDIES

CORPORATE (A.M.I.E.)

TECHNICAL COLLEGE - EVENING CLASSES Appendix II

Subjects Taught	Enrolment for each sub. (ave.)	No. of hours of Lecture for session	No. of Lecturers employed.
<b>Joint Part I Examination</b>			
Mathematics	15	} 1.1/2	6
Principles of Electricity	17		
Strength of Materials & Theory of Structures	6		
Applied Mechanics	15		
Heat, Light & Sound	15		
Engineering Drawing	18		
<b>City &amp; Guilds Exam. (Intermediate)</b>			
Structural Engineering	28	1.1/2	1
Builders Quantities	11	1.1/2	1
Radio	27	1.1/2	1
Electrical Engineering	42	1.1/2	1
<b>Australian Licensed Surveyors Exam.</b>			
Geodesy	8	} 1.1/2	1
Astronomy	9		
Engineering Surveying	11		
Land Classification & Utilization	6		
Aerial Surveying & Photogrammetry	6		
Geology & Forestry	6		
<b>Royal Society of Health Exam.</b>			
Chemistry & Physics (Parts I & II)	22	1	2
Building Construction	26	1.1/2	1
Prestressed Concrete	21	1.1/2	1
Architectural Design	30	2	2
Soil Mechanics	17	1.1/2	1

Elementary Survey	20	1, 1/2	1
Mechanical Engineering Drawing & Design	17	2	2
*Automobile Engineering (Other media)	27	1, 1/2	1

Higher School Certificate  
Exam.

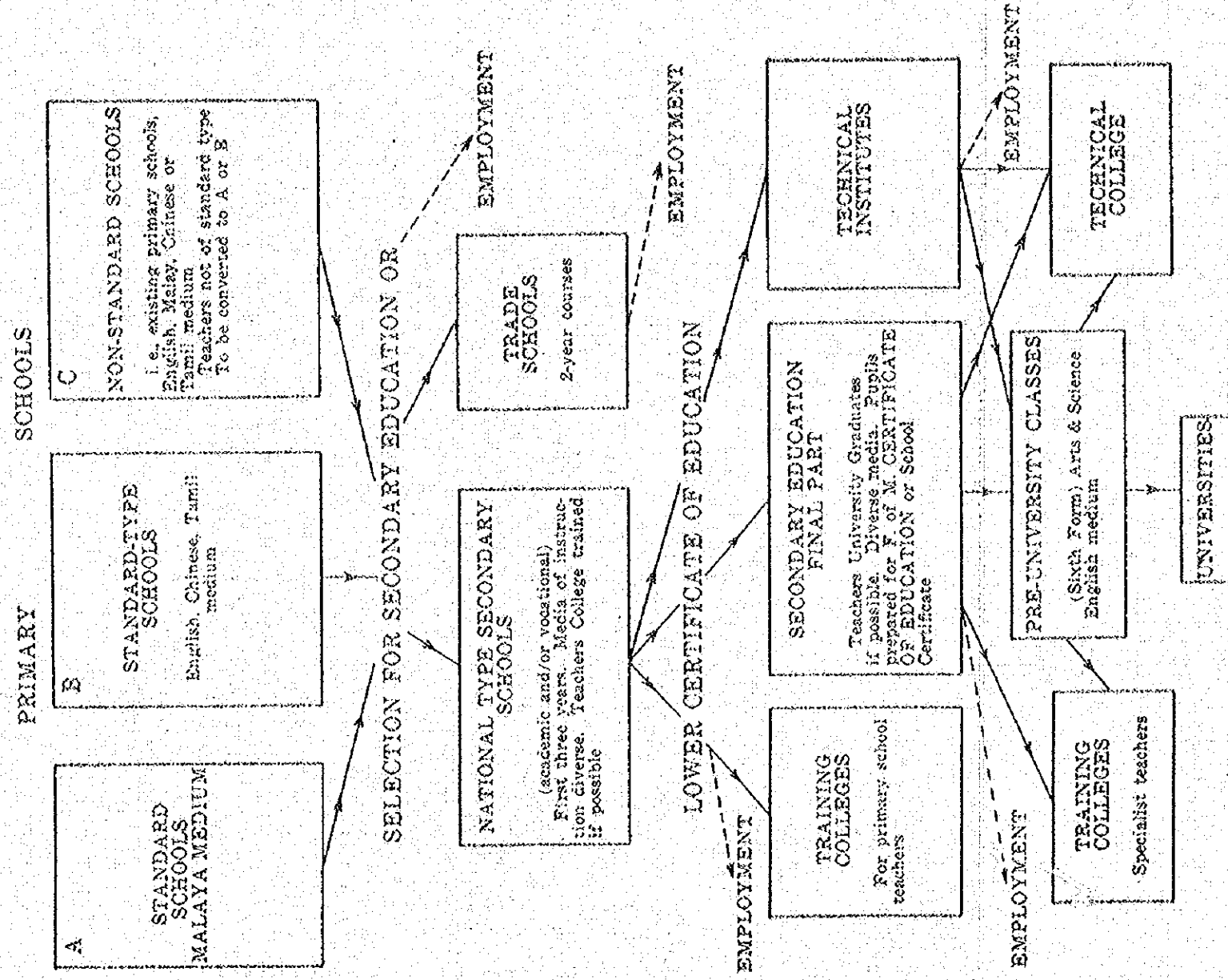
Mathematics	} 40	2	2
Physics		2	2
Chemistry		2	2
General Paper		1	1

Rates of Tuition Fees: 50 cents per hour, except for item  
marked \* which is 20 cents per hour

Technical Institute - Evening Classes

Electrical Technology - Engineering Science, Stage I	18	2	2
AC AND DC Intermediate	27	2	2
Electrical Science, Preliminary	11	2	1

DIAGRAM SHOWING THE PROGRESS OF PUPILS  
UNDER THE RECOMMENDED EDUCATION POLICY



Note—Sizes of compartments in this diagram have no relation to length of courses or to the number of pupils.

Workshop and Laboratories

Technical College

The College workshop is equipped with lathos, milling and shaping machines, drilling machines, bench tools, gas and oxy-acetylene welding equipment and woodwork machines.

Adequate equipment exists in the Automobile Workshop for dismantling, overhaul and assembly of transmission systems.

There are adequate facilities in the Materials Laboratory for the testing of various engineering materials and students carry out tests for contractors and technical departments. The laboratory is equipped with a 100 ton and a 200 ton Universal Testing Machines, one Amsler Wood Testing Machine, one 200 ton compression machine and in addition, impact, torsion and hardness testing equipment. The laboratory is also well equipped for the testing of cement and concrete in accordance with the latest specifications and codes. Civil Engineering students are given practical work in the design of various concrete mixes using local materials.

The Soils Laboratory is equipped with the latest Soils Mechanics apparatus and students investigate actual site conditions on adjoining projects and carry out tests and prepare reports.

The Hydraulic Laboratory has a tilting flume, 50ft. long, various measuring tanks, an experimental pipe network system and pumps with which basic hydraulic experiments can be undertaken. An important feature of the laboratory is a model water filtration plant where experiments in water engineering is undertaken. There is also a hydraulic bench for experiments in irrigation practice and river training.

The Electrical Laboratory has modern equipment to carry out experiments of the standard required for the Institution of Electrical Engineers Examinations. The laboratories have separate Generating, Testing, Measuring Instruments and Radio Communications sections. A considerable portion of the equipment has been generously donated by the Australian Government under the Colombo Plan.

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The Chemistry and Physics Laboratories are well equipped to enable students to take examinations in Science subjects to the Principal Level of the Higher School Certificate.

The College has a good stock of modern surveying equipment and students receive considerable practical training in the use of instruments and spend much time on various engineering surveys.

Appendix VI

Boards of Governors

Rural Trade Schools

- 3 nominees of the State Department.
- 3 " Local Education Authority
- 3 " parents
- 2 " local industry.

Junior Technical (Trade) Schools & Technical Institutes

- 3 nominees of the State Department
- 3 " Local Education Authority
- 1 " Ministry of Labour
- 1 " Ministry of Works
- 3 " Professional Engineering Institutions
- 1 " Royal Institute of Chartered Surveyors
- 3 " Parents of pupils.

Technical College

- Chairman - appointed by the Minister of Education.
- 1 member of the Ministry of Education



- 1 member of the Ministry of Finance
  - 1 " University of Malaya
  - 1 nominee of the Institution of Civil Engineers
    - 1 " Electrical Engineers
    - 1 " Mechanical Engineers
  - 1 " Royal Institution of Chartered Surveyors
  - 1 " Federation of Malaya Society of Architects
  - 1 " Technical Association of Malaya
  - 1 " Technical College Alumni Association
- 2 members nominated by the Minister of Education.
- Secretary - Principal, Technical College.

PAKISTAN

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2. Scheme for the Vocational Training of Adults	391
Appendix:	

MEMORANDUM

TO :

FROM :

SUBJECT :

RE: [Illegible text]

[Illegible text]

[Illegible text]

[Illegible text]

### Introduction

In order to present a clear picture of the system of vocational and technical education in Pakistan, it appears necessary to describe briefly the pattern of general education in the country. The main stages of general education are the following:-

- (a) Primary: First five years of child's schooling
- (b) Secondary: Five-year course after the Primary stage
- (c) Higher Secondary: Two-year course after the Secondary stage
- (d) Bachelor's degree: Two-year course after the Higher Secondary stage
- (e) Master's degree: Two-year course after the Bachelor's degree

Accordingly, young men can generally qualify for a master's degree at an average age of twenty one years, that is, five years of pre-school years and sixteen years of education.

Technical occupations in Pakistan, as in other countries, may be divided into three distinct groups:-

- (a) Craftsmen or skilled workmen
- (b) Technicians - Licentiates or diploma holders in various technologies
- (c) Engineers - University graduates with a bachelor's degree in engineering

Let us now discuss each group separately:

## 1. Training

### (1) Training of Craftsmen:

Each of us must become trained for the job he has to do. We may learn it from an expert elder or in a special institution. Thus there are two ways by which a person may become a craftsman. He may join an industry as an apprentice and complete his training as a skilled workman in due course of time. A son may be apprenticed by his father and learn by working with him in his craft. Or he may attend one of the industrial schools run by the Government or by private bodies for the training of craftsmen. Students may be admitted to these schools with anything from a primary to a secondary general education. Many of them have completed the secondary stage.

Training continues from one to four years, depending upon the nature of the trade and the initial general education of the student. About one thousand skilled craftsmen are being trained per year. No proper estimate is available of craftsmen getting training within the industries. As a rough estimate, it may be stated that about 50,000 young men get trained every year. A copy of the prospectus of a typical trade school is attached as Appendix I.

More and more general secondary schools now offer technical courses in woodwork, metal work and practical electricity. Students who have qualified in these general secondary schools with technical bias join technical institutes to qualify as technicians, or enroll for other courses in the higher secondary schools according to their tastes.

### (2) Training of Technicians:

A young man who has completed the secondary stage

meets the minimum entrance requirements in general education for the technical institutes and polytechnics. These institutions give three-year courses to prepare technicians in mechanical, electrical, radio, electronics, automobile and other technologies.

Sixty per cent of the course total is devoted to practice, and forty per cent to theory. The practical skills are imparted in the laboratories and workshops of the institutions. In order to enlarge the outlook of the students, a number of visits to factories and industries are arranged.

After successfully completing the course the student is awarded licentiatehip or diploma in his technology. About one thousand technicians qualify every year in different technologies. A copy of the Polytechnic Institute, Dacca is attached as Appendix II.

Various official agencies or bodies conduct examinations for the certification of electrical supervisors, boiler attendants and other technicians.

### (3) Training of Engineers:

The higher secondary stage of general education, with physics, chemistry and mathematics as compulsory subjects, is the minimum educational requirement for entrance to a degree engineering college. Facilities exist in Pakistan at present for degree courses in electrical, mechanical, civil, mining and chemical engineering. The duration of the courses is four years. Seventy per cent of the time is devoted to basic engineering theory and thirty per cent to practical work in the laboratories and the shops.

Upon successful completion of the curriculum, the student writes a university examination every year

and if he passes all the four-yearly examinations, the university grants the appropriate bachelor's degree in engineering. About 500 Engineering Graduates qualify every year from the various Universities. A copy of the prospectus of the College of Engineering and Technology, Lahore is attached as Appendix III.

#### (4) Post-graduate Education

No facilities exist in Pakistan at present for post-graduate work in any branch of engineering. However, outstanding young graduates are sent to countries like the United Kingdom and the United States for post-graduate and research work in the several branches of engineering. About 50 Engineering Graduates go abroad for further training and education.

#### (5) Professional Examinations:

The Institute of Engineers, Pakistan, and similar bodies of the United Kingdom and the United States conduct annual or semi-annual examinations for the certification of engineers, Technicians, and practical men who have risen from the ranks ordinarily write these examinations. Those who qualify in all sections of the examinations are considered the academic equal of university bachelors in engineering.

#### (6) Technical Teachers' Training College

Vocational and technical education is greatly dependent on the supply of suitably trained teachers. There is a great need in Pakistan for training colleges to educate the technical teachers and emphasis is now being placed on establishing more and more of such institutions. A technical teachers' training programme is successfully working at the Polytechnic Institute at Karachi and another Technical Teachers' Training College is to start functioning at Rawalpindi from October, 1959.