

上記の内容を判断する限り、日本側のプロジェクト方式技術協力の対応方針を固め本年6月中旬か下旬までに事前調査団を派遣し、メキシコ側に日本側が協力する学科の施設建設に対応するために、同7月に長期調査員を派遣することが望ましいと判断せざるを得ない。

ただし、メキシコ側に対し日本の協力量針については、自動車は協力の対象とせず、メカトロニクス分野を核として、その技術を構成する各分野（制御系、機械系等）を主体とした技術移転をすることに協力を集中することを伝えた。

この結果を受けて、今後協力分野の絞り込み、モジュールの内容、機材の内容等具体的協力の範囲並びに協力内容が固まって、マスタープランがいつ頃出来るかにもよるが、DGETIの局長、並びに技術部長が訪日した際には来年度予算の関係上、本年7月中に施設の設計を完了しなければならないという重要な事項についてのコメントは、一切なかったこともあり、今回基礎調査を行い、上記問題点がはっきり浮かび上がって来たものである。

協力の内容をJICA内で検討すべき時間的余裕を最低限確保して欲しい強い要望が出された。JICA内での検討後、すみやかに各省会議を行い、今後の協力内容等について、対応方針を確立し、必要な事務手続を進めるにしても、6月中旬～下旬に事前調査団を派遣するのは、限られた時間的制約の中で再度今後のスケジュールについて検討が必要である。

又、7月には日本側が協力する分野について、メキシコ側の施設建設に関するアドバイザーとしての長期調査員の派遣についても併せて対応が可能かについて検討が必要であると考える。

尚、具体的には、以下の対応が考えられる。

① 事前調査団の派遣

派遣時期	平成5年6月下旬から約2週間
業務内容	サイトの決定、協力スケジュールの決定、C/Pの配置等
機 械	――機械系訓練の分野、レベルの決定
制 御	――制御系訓練の分野、レベルの決定
訓練計画	――メカトロ訓練の分野、レベルの決定

② 長期調査員の派遣（方法、派遣時期未定）

派遣時期	平成5年7月から約1カ月（暫定案）
派遣分野	機械、制御、建築
業務内容	建築――センター建設に対するアドバイス
	機械――機械系訓練のカリキュラムと主要機材の選定
	制御――制御系訓練のカリキュラムと主要機材の選定

③ 実施協議調査団の派遣

派遣時期	平成6年第2回長期調査員派遣後
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④ 長期専門家の派遣時期

リーダー及び一部専門家 (EPC)

R/D締結後

実施協議調査までのスケジュール (案)

	'93/4	5	6	7	8	9	10	11	12	'94/1	2	3	4	5	6	7	8	9	10	11	12	備考	
メキシコ側	<p>(予算年度は1月～12月)</p> <p>○ ←-----> (I期工事) 設計詳細設計</p> <p>○ 予算要求 (II期工事分)</p>																						
日本側	○ 基礎調査			○ 事前調査																			<p>第2回目の長期調査員及び実施協議派遣時期については、メキシコ側の対応状況並びに建設実施スケジュールを見ながら派遣形態も含め決定する。</p>

7-2 今後の調査の留意点

7-2-1

今回の訪問企業では新卒テクニコについて技術に関する実務知識の不足を指摘する意見が多かった。実際には総教育時間の50%近くが実習時間として割り振られている。その実態について以下の項目について調査・分析し、必要によっては実習システムを設計する必要がある。

- a) 実習に対し習得すべき技術の領域水準が特定されているか。
- b) 実習企業の選定方法
- c) 実習手順の決定方法
- d) 教師の実習生への指導法
- e) 受入れ企業の教育実習に対する便宜供与の内容

7-2-2

現地系・日系企業共に新卒テクニコの技術基礎知識の不足を指摘している。以下教科について、教育の範囲・水準、教師の専門性等について検討する必要がある。

工業数学、工業材料、工業標準

計測技術、情報処理技術

機械工作法

7-2-3

今後の清算設備の近代化、あるいは品質向上に備えてツーリング・ジグの設計・製作技術の導入と教育方法の検討。

7-2-4

対象教師の学歴は、大卒・工業高校卒で構成されており、教育方法について検討を要する。

8. その他

8-1 要請書

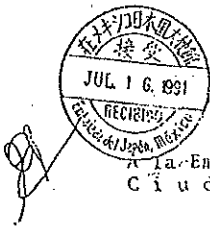
CTC 04788

La Secretaría de Relaciones Exteriores saluda atentamente a la H. Embajada del Japón, y hace mención a la cooperación técnica entre ambos países.

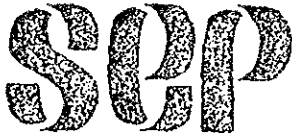
En relación con la nota.No. 900610 del 11 de julio de 1988, la Dirección General de Cooperación Técnica y Científica tiene el agrado de enviar nuevamente el documento Creación del Centro Nacional para la Capacitación del Personal de la DGETI, y reitera el interés de la Secretaría de Educación Pública, por mantener esta propuesta.

La Secretaría de Relaciones Exteriores agradece a la Embajada la atención que se sirva otorgar a la presente, y aprovecha la ocasión para reiterarle las seguridades de su más alta consideración.

México, D. F., a 15 de julio de 1991.



A la Embajada del Japón.
Ciudad.



DIRECCION GENERAL DE EDUCACION
TECNOLOGICA INDUSTRIAL

CONJUNTO PINO SUAREZ
EDIFICIO "F" 3er. PISO

DEL CUAUHTEMOC
C.P. 06090

OFICIO No. 220-(1) 35017/90

México, D.F., a 1 de Agosto de 1990.

LIC. HISASII MOCHIZUKI
DIRECTOR DE LA AGENCIA DE
COOPERACION INTERNACIONAL
DE JAPON "JICA"

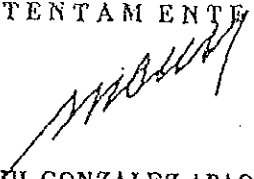
Estimado señor Mochizuki:

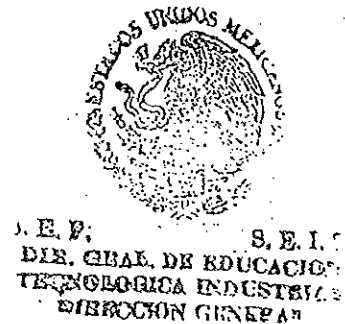
En relación al proyecto denominado "Centro Nacional para la Formación de Instructores", que presentó esta Dirección General, al Gobierno de Japón, el pasado 28 de mayo de 1988, me permito solicitar a usted, interceda ante su Gobierno a efecto de que nos informe de los resultados de nuestra gestión.

Agradezco a usted anticipadamente, sus buenos oficios para hacer realidad el proyecto citado.

Aprovecho la ocasión para reiterarle las seguridades de mi atenta y distinguida consideración.

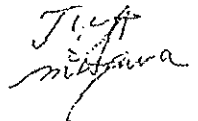
ATENTAMENTE

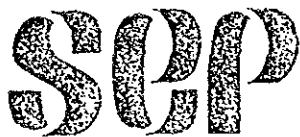

ING. RAÚL GONZALEZ APAOLAZA
DIRECTOR GENERAL



c.c.p. Ing. Oscar Primo García Aguilar.- Subdirector de Vinculación.

RGA*OPGA*nmg.





DIRECCION GENERAL DE EDUCACION
TECNOLOGICA INDUSTRIAL

CONJUNTO PIND SUAREZ
EDIFICIO "F" 3er. PISO

DEL. CUAUHTEMOC
C.P. 06090

México, D. F., a 28 de Septiembre de 1988.

OFICIO No. 220(1)16468/88

C. LIC. JUAN ANTONIO MATEOS CICERO.
DIRECTOR GENERAL DE RELACIONES
INTERNACIONALES DE LA S.E.P.
P. R E S E N T E .

En atención a su atenta comunicación de fecha 17 de Agosto del año en curso referente a la propuesta del proyecto denominado "Creación del Centro Nacional para la Capacitación del Personal Docente de la DGETI"; anexo al presente me estoy permitiendo presentar a usted el documento de referencia en el idioma Ingles como nos fue requerido. Rogandole ser el amable conducto para hacerlo llegar a la Embajada de Japón en nuestro país, por la vía Diplomática.

Aprovecho la ocasión para reiterarle las seguridades de mi atenta y distinguida consideración.

A T E N T A M E N T E .

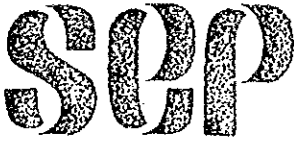
ING. ALEJANDRO VAZQUEZ GUTIERREZ.
DIRECTOR GENERAL



S. E. P.
DIR. GEN. DE EDUCACION
TECNOLOGICA INDUSTRIAL
DIRECCION GENERAL

c.c.p. Dr. Manuel V. Ortega Ortega.- Subsecretario de Educación e Investigación Tecnológicas.

AVG/chpme.



DIRECCION GENERAL DE EDUCACION
TECNOLOGICA INDUSTRIAL

CONJUNTO PING SUAREZ
EDIFICIO "F" 3er PISO

DEL CUAUHTEMOC
C.P. 06090

México, D.F., May 27, 1988.

LIC. JUAN A. MATEOS CICERO,
GENERAL DIRECTOR OF INTERNATIONAL
RELATIONS OF THE MINISTRY OF EDUCATION,
P R E S E N T .

This General Administration has carried out a study to determine the possible growth of the DGETI Subsystem in terms of educational offer. The study indicates that 10,000 new teachers will be required for the next 12 years. In view of this, we have considered necessary to establish a national program towards the preparation and updating of our faculty.

To carry out this program we have considered the collaboration of the Japanese Government, which could be obtained through the agreement on technical cooperation signed between the Mexican and Japanese Governments and published in the Mexican Official Diary on December 9, 1987. ~~CONVENIO DE COLABORACION TECNICA ENTRE EL GOBIERNO DE MEXICO Y EL GOBIERNO DE JAPON EN MATERIA EDUCATIVA~~ On the basis of this agreement, we have held meetings with officers from the Embassy of Japan, to determine the possibility of technical cooperation with our Subsystem. As a result, we have prepared the following document called "Project for the creation of a National Training Center for Teachers of DGETI", which we kindly request be sent to the Japanese Embassy through the appropriate diplomatic channels.

Based on the experience gained through the creation and operation of the Center for Technological Studies "Mexico-Japan" (1982-1987), and in view of the positive results that have been obtained, we have considered this new possibility of cooperation by the government of Japan in actions of a greater coverage and importance for the DGETI Subsystem.

I take the occasion to greet you with my due respect and consideration.

RESPECTFULLY
GENERAL DIRECTOR

ING. ALEJANDRO VAQUERO GUTIERREZ



S. E. P. S. E. L. I
DIRECCION GENERAL DE EDUCACION
TECNOLOGICA INDUSTRIAL
DIRECCION GENERAL

AVG/ammb.

MINISTRY OF PUBLIC EDUCATION.
UNDERSECRETARY OF TECHNOLOGICAL EDUCATION AND RESEARCH.
GENERAL ADMINISTRATION OF TECHNICAL AND INDUSTRIAL EDUCATION.

PROJECT TO ESTABLISH A NATIONAL CENTER FOR THE DEVELOPMENT AND TRAINING OF TEACHERS BELONGING TO THE GENERAL ADMINISTRATION OF TECHNICAL AND INDUSTRIAL EDUCATION WITH THE TECHNICAL COOPERATION OF THE GOVERNMENT OF JAPAN, THROUGH THE JAPAN INTERNATIONAL COOPERATION AGENCY.

REVISION 1

SEPTEMBER 1988

PRESENTATION

The General Administration of Technical and Industrial Education (DGETI) is a branch of the Ministry of Public Education in Mexico and is responsible for educational activities at Senior High School Level in the Technical, Industrial and Service areas.

To meet its requirements of growth and technical development, DGETI has structured a National Training Program for Teachers, that will bring them up-to-date in their field and will benefit the quality of our education.

Since there are some areas in which Japan has reached a high level of development, we want to propose the collaboration between the Mexican and Japanese Governments, for the development and updating of teachers in technical and pedagogical aspects in the following fields:

- Computing.
- Electronics.
- Mechatronics
- Automobile Mechanics.
- Production Mechanics.
(Machine tool)

These fields are considered of high priority due to the perspectives for Mexico's technological and industrial development.

We want to comment that the good results that we have had from the technical cooperation in the Center of Technological Studies Mexico-Japan (1982-1987) in Celaya, Gto., is antecedent that has led us to consider the possibility of further cooperation from the Japanese Government, now in aspects of a higher level in the entire Subsystem of Technological Industrial Education.

The document that is presented to the Japanese Government for creating this Center, is divided into two parts: in the first one we talk about the characteristics of the educational subsystem under DGETI; this serves as a reference frame to the cooperation project of the Japanese Government, that we present in the second part.

1) REFERENCE FRAME

The General Administration of Technical and Industrial Education (DGETI), is a branch of the Educational System dependent of the Undersecretary of Technological Education and Research, of the Federal Government of the United Mexican States.

In annex one we present a diagram of the Ministry of Public Education, where we find the structure of DGETI.

The General Administration of Technical and Industrial Education (DGETI) has as a main purpose the development of skilled technicians, to develop, strenghten and maintain a technological culture and its own service and industrial infraestructure to suport the country's social and economic requirements.

Among DGETI's functions, in terms of the project, we can mention the following:

- Obj*
- To propose pedagogical methods, plans, programs and curricula for the senior high school level in Technical Industrial Education.
 - To verify that the pedagogic standards plans, programs and contents of study and methods approved for this level of education are executed.
 - To organize, operate, develop, verify and evaluate the Technical Industrial Education that is given in our schools.
 - To design and develop programs for the training and development of our personnel.

In annex two we present a diagram locating the senior high school level of education in terms of pupils age, years of schooling and its relationship with the different school levels in Mexico.

The General Administration of Technical and Industrial Education (DGETI) in order to fulfill its functions, develops the programs for:

- A) Technical Senior High School Centers (3 years).
- B) Vocational Training Centers (3 or 4 years).

The Technical Senior High School branch has a double purpose:

- a) To provide the students with the necessary knowledge that will enable them to continue superior studies at a bachelor of science level and,
- b) To provide the students with the sufficient knowledge and abilities in a specific technological area, with which they will be qualified for technical functions in the productive sector.

When the vocational training students get their degree, they have an immediate and direct destination to the productive sector.

The General Administration of Technical and Industrial Education (DGETI) operates areas and specialities related to the industrial and services sector.

In the 1986-1987 school year, the student population of DGETI was 310,600. 68,350 of them, chose the vocational training mode and 242,250 students the technical senior high school mode.

The former means that DGETI covers 43% of the students population registered in the senior high school level of the National System of Technical Education covered by the Undersecretary of Technological Education and Research; the remaining students are attended by five different institutions.

By modalities, DGETI covers 52% of the technical senior high school education and 27% of the vocational training mode on a national basis.

Nowadays, DGETI offers a complete field of possibilities to the students, because in the vocational training mode it has about 70 careers, that correspond to the industrial and service fields.

In the technical senior high school mode three basic knowledge areas are covered: physical-mathematics, chemical-biology and economical-administration.

The technical option, that complements the former, is related with its area of knowledge and covers about 40 specialities.

The careers and specialities that DGETI offers to the industrial and service sector, have the purpose to prepare technicians for extractive and transformation industries, and in the service area: the administrative, commercial and also health personnel.

The technical orientation of DGETI is intimately linked with the characteristics of the technical development in the country; therefore in five areas: computation, electronics, Mechatronics, automobile mechanics and mechanic of production, the student population is about 15% of the national total clear perspectives of growth for the next years.

To satisfy its purpose, the General Administration of Technical and Industrial Education operates 400 schools in the country; 60% of them are named CBTIS (Technical Senior High School Centers), the rest are named CETIS (Vocational Training Centers).

Originally the schools named CBTIS and CETIS were planned with the above orientation. However in response to local needs, this separation no longer exists and there are schools that offer both modalities.

The faculty consists of approximately 22,500 teachers, made up largely by technicians at high school level or with B.S. studies.

Due to the accelerated growth of the DGETI Subsystem in recent years, it was necessary to hire technicians without enough teaching background or experience, to meet the demand.

For this reasons DGETI needs to up-date its personnel technically and to help in their pedagogical formation, in order to improve the efficiency of our education.

To carry out this task, DGETI has offered during the last five years some courses related to pedagogical and technical aspects, those that were considered of more priority.

In this actions we have followed two strategies: one, the direct attention to the teachers, and the other, the creation of teacher-trainers to satisfy specific regional needs.

In the pedagogic area there were 528 courses related to 11 different topics, attended by 9,681 teachers.

In the same area we created 198 regional instructors, who offered courses that reached to 17,140 teachers.

In the technical area there were 25 courses for 1,133 teachers, and we also trained 220 instructors who offered courses to 5,827 teachers.

In annex three are shown in detail the actions mentioned in the last paragraphs.

The first studies that have been made about the possible increase of the type of education that DGETI offers and the needs that have come about due to the substitution of personnel, show that in the next 12 years we will need approximately 10,000 new teachers.

Annexes four and five, show the tendencies of student population growth and the increase in schools. Annex six shows in a graphic form, our expectations in teacher incorporation.

The previous needs have led us to develop a program of national coverage for the training and up-dating of the faculty of DGETI. It is in that frame of reference that we state as a priority the areas of computing, electronics, Mechatronics, automobile mechanics and production mechanics (machine tool).

2) COOPERATION BY THE JAPANESE GOVERNMENT

The creation of a Mexican-Japanese Center for Developing and updating the faculty is an action that will allow the General Administration of Technical and Industrial Education, (as part of the National System of Technical Education of the Ministry of Public Education in Mexico), to have the teachers who will give impulse to this national project: the creation of capable technicians with the proper attitudes that will be required by the country in the next years.

The technical areas that will be covered by this center area:

- Computing.
- Electronics.
- Mechatronics.
- Automobile Mechanics.
- Production Mechanics
(Machine tool)

They have been considered priorities in the general project of development by the General Administration of Technical and Industrial Education, due to their relationship with the technical development of Mexico.

The Reference Frame of this project is the program of technical cooperation offered by the Japanese Government, in terms of the agreement on technical cooperation between Mexico and Japan, published in the Mexican Official Diary of December 9, 1987 which says; The Japanese Government, according to its laws and actual rules, will carry out at its own expense the following forms of technical cooperation.

- A) To receive mexican nationals for their technical training in Japan.
- B) To send japanese experts (which will henceforth be called "The Experts") to Mexico.

- C) To send japanese missions (which will henceforth be called "The Missions") to Mexico to perform studies of projects for the social and economic development of the country.
- D) To provide equipment, machinery and materials to the mexican government.
- E) Japan will provide any technical cooperation that both governments mutually agree upon.

3) TARGETS OF THE CENTER

The general goals for the center, as a result of Japanese cooperation for which we consider a minimum of 15 years of activity, can be summarized as: -

A) Preparation of teachers in order to meet the needs, in quality and quantity, of the General Administration of Technical and Industrial Education (DGETI) that originate as a consequence of:

- a) Its process of growth.
- b) Its natural process of renewal of their faculty.

B) The updating of teachers in service that need, due to their professional background:

- a) A complementary pedagogic instruction.
- b) A complementary technical instruction.

In order to obtain the best results in the educational process and in response to the development of the different technical fields.

C) Updating of the curriculum for the preparation of technicians at selected areas; in this way this updating will be a continued and permanent process in the educational system under DGETI.

D) Elaboration and development of a program towards the preparation of teachers of technological education at a B.S. level.

4) GENERAL OBJECTIVES

- A) To elaborate and design the programs towards the technical and pedagogical training and updating of the faculty in areas of:
- Computing.
 - Electronics.
 - Mechatronics.
 - Automobile Mechanics.
 - Production Mechanics.
(Machine tool)
- B) To carry out the courses in preparation and updating of the present and new faculty members of DGETI, according to the population objective determined by the national program.

5) SPECIFIC GOALS

The center will perform courses for the updating and specialization of teachers.

Updating courses: their goal is to offer to the teachers the opportunity of renewing their knowledge in different fields and specialties pertaining to the services offered by DGETI.

6) SPECIALIZATION

Has the purpose of preparing specialists in different fields, providing them with a broader knowledge in a certain area and training them in the skillful practice of it.

The courses are intended to be integrated into modules, to provide a more flexible operation.

The following is a general scheme of the possible courses.

COMPUTING	MODULE I	120 HOURS.
	MODULE II	120 HOURS.
ELECTRONICS	MODULE I	120 HOURS.
	MODULE II	120 HOURS.
MECHATRONICS	MODULE I	120 HOURS.
	MODULE II	120 HOURS.
AUTOMOBILE MECHANICS	MODULE I	120 HOURS.
	MODULE II	120 HOURS.
PRODUCTION MECHANICS	MODULE I	120 HOURS.
	MODULE II	120 HOURS.
PEDAGOGICAL UPDATING COURSES	MODULE I	60 HOURS.
	MODULE II	60 HOURS.
	MODULE III	60 HOURS.
TRAINING COURSES FOR NEW TEACHING PERSONNEL		120 HOURS.

7) COURSES OFFERED BY THE CENTER

<u>AREA</u>		<u>QUANTITY OF COURSES/YEAR</u>	<u>TEACHERS/YEAR QUALIFIED</u>
COMPUTING	MODULE I	6	120
	MODULE II	6	120
ELECTRONICS	MODULE I	6	120
	MODULE II	6	120
MECHATRONICS	MODULE I	6	120
	MODULE II	6	120
AUTOMOBILE MECHANICS	MODULE I	6	120
	MODULE II	6	120
PRODUCTION MECHANICS	MODULE I	6	120
	MODULE II	6	120
PEDAGOGICAL UP-DATING COURSES	MODULE I	7	140
	MODULE II	7	140
	MODULE III	7	140
TRAINING PROGRAM FOR NEW PERSONNEL		11	220

According with the previous program this center would train a total of 1,840 teachers of DGETI per year.

The National Training Program for Teachers will presumably take fifteen years, and intends to train, in a first stage, a total of 60 teachers.

The first year, because the restrictions in planning, organization and development of programs, the goal could be only 50%.

8) NATIONAL STAFF OF THE CENTER

A) Direction.

- a) Director 1
- b) Subdirector 1

B) Teaching staff.

a) Full time teachers for the following fields.

	<u>Number of teachers for Speciality</u>
Computing	5
Electronics	5
Mechatronics	5
Automobile Mechanics	5
Production Mechanics (Machine tool)	5

- b) 25 full time teachers to assist in the pedagogical area.

9) MASTER PLAN

The project will be performed according to the next master plan.

A) Cooperation during five years between both governments in the execution of the plan.

B) Administration of the center by the General Administration of Technical and Industrial Education "DGETI".

C) Specialities:

- Computing.
- Electronics.
- Mechatronics.
- Automobile Mechanics.
- Production Mechanics (Machine tool).

D) Assistance of Japanese experts.

The Government of Japan will provide through the Japan International Cooperation Agency "JICA" the necessary expert for each speciality indicated before.

We are considering the experts collaboration during five years, which technical teaching will have effect during the next 50 years.

E) Mexican Personnel.

DGETI will provide enough personnel for carrying out this project according with the management, teaching, administrative and service areas.

F) Installation.

The Mexican counterpart will take the necessary actions to provide the appropriate installations, in the place selected to built the center.

G) Location of the center.

Due to the dimension of DGETI Subsystem that operates the high school level in the whole country, it is necessary to locate strategically the national center.

The following places are proposed:

Toluca, Mexico.

Cuernavaca, Morelos.

Puebla, Puebla.

All this places, besides their nearness to the Federal District, have an industrial structure which would help the people's atmosphere in the courses that the center will offer.

Annex eight shows the geographical location of the three cities proposed for the center.

H) Machinery and equipment supply.

The japanese counterpart according to the normal procedure of technical cooperation, will provide through "JICA" the enough machinery and equipment needed to operate the project. The mexican counterpart will supply to the center, the furniture and equipment agreed.

I) Scholars.

The japanese government will receive for specialization courses in Japan, scholars, selected by the mexican administration and the japanese mission of the center. In this respect, it is considered that the government collaborat means a total of 150 scholar-month.

J) Financial resources.

The economic resources for operating the project, will be provided by DGETI through the established procedures.

The center will elaborate, yearly, a budget program of comes and expenses; the exercise of that budget will be subjected to current orders based on the authorized bud to DGETI.

K) Administration of the project.

For operating the center, a fifteen year management program will be established for planning, to execute, direct, control and evaluate the right progress of the project.

L) Organization.

The center will have a technical board of Directors integrated by the General Director and the DGETI Area Directors.

In the following level will be located the Director of the center. The Japanese delegation group with staff functions. The center will be integrated with the following areas:

- Academic: in charge of the training programs and curricula academic improvement.
- Administrative: in charge of the human, financial, material resources and services.
- Planning and evaluation: will carry out the planning and evaluation of the management program, statistics, information and control the supply and equipment for operating the center.

M) Bilateral evaluation committee.

The bilateral evaluation committee will be integrated by officials designated by the Japanese and Mexican governments with the following functions:

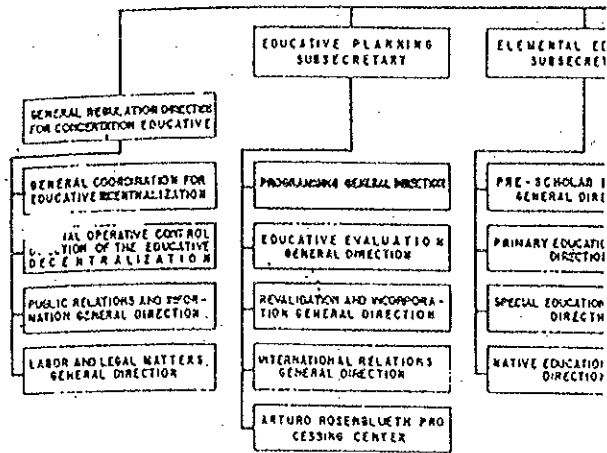
- a) To supervise the project advance.
- b) To analyze the joint actions taken in:
 - Sending of experts.
 - Scholarships program.
 - Machinery and equipment supply.
 - Building of the necessary installations for operating the project.
 - The adequate economical resources for operating the center.
 - The counterpart of Mexican personnel.
 - The utilization of the equipment supplied.

- c) Elaboration of an annual operating program.
- d) To recommend the necessary actions for the best operation of the project.

PROJECT IMPLEMENTATION

PERIOD OF TECHNICAL COOPERATION ACTIVITIES	1st. YEAR	2 ND. YEAR	3 RD. YEAR	4 TH. YEAR	5 TH. YEAR
PERIOD OF TECHNICAL COOPERATION					▶
SENDING OF JAPANESE EXPERTS					▶
A HEAD OF GROUP					▶
B CONNECTION OFFICIAL					▶
C SPECIALTY EXPERTS					▶
D SHORT TERM EXPERTS					▶
MACHINERY AND EQUIPMENT SUPPLY					▶
RECEPTION OF FELLOWS FOR THEIR TRAINING IN JAPAN	◀	▶	▶	▶	▶
MEXICAN PERSONNEL					▶
A DIRECTOR AND OFFICERS					▶
B FULL TIME INSTRUCTORS					▶
C ADMINISTRATIVE PERSONNEL					▶

MINISTRY OF PUBLIC EDUCATION
ORGANIZATION CHART



DESCONCENTRATED ORGANISMS

DECENTRALIZED ORGANISMS

10) ACTIVITIES TO PREPARE AND UPDATE THE FACULTY OF DGETI

1983 - 1988

PEDAGOGICAL AREA:

<u>COURSE</u>	<u>QUAN TITY</u>	<u>INSTRUCTORS PREPARED</u>	<u>TEACHERS ATTENDED DIRECTLY</u>	<u>TEACHERS ATTENDED WITH MULTIPLICATION PURPOSES</u>	<u>TOTAL</u>
Introduction for systematizing the teaching-learning process	53	48	168	1,741	1,941
Teaching technology	95	---	279	3,343	3,622
Pedagogic technology	34	6	540	3,172	3,718
Pedagogical Psychotechnics	261	40	7,920	-----	7,968
Methology of teaching in basic sciences	4	---	120	-----	120
Psychopedagogic as- pects in teaching	19	30	540	3,172	3,742
Design of didactic material of low cost	2	---	60	-----	60
Didactic technics applied to micro- teaching	1	---	30	-----	30
Socio-pedagogical aspects of teaching	33	32	---	800	832
Introduction to cu- rricular design	25	50	---	4,912	4,962
To prepare material for self-introduc- tion	1	---	32	-----	32
T O T A L :	528	198	9,681	17,140	27,019

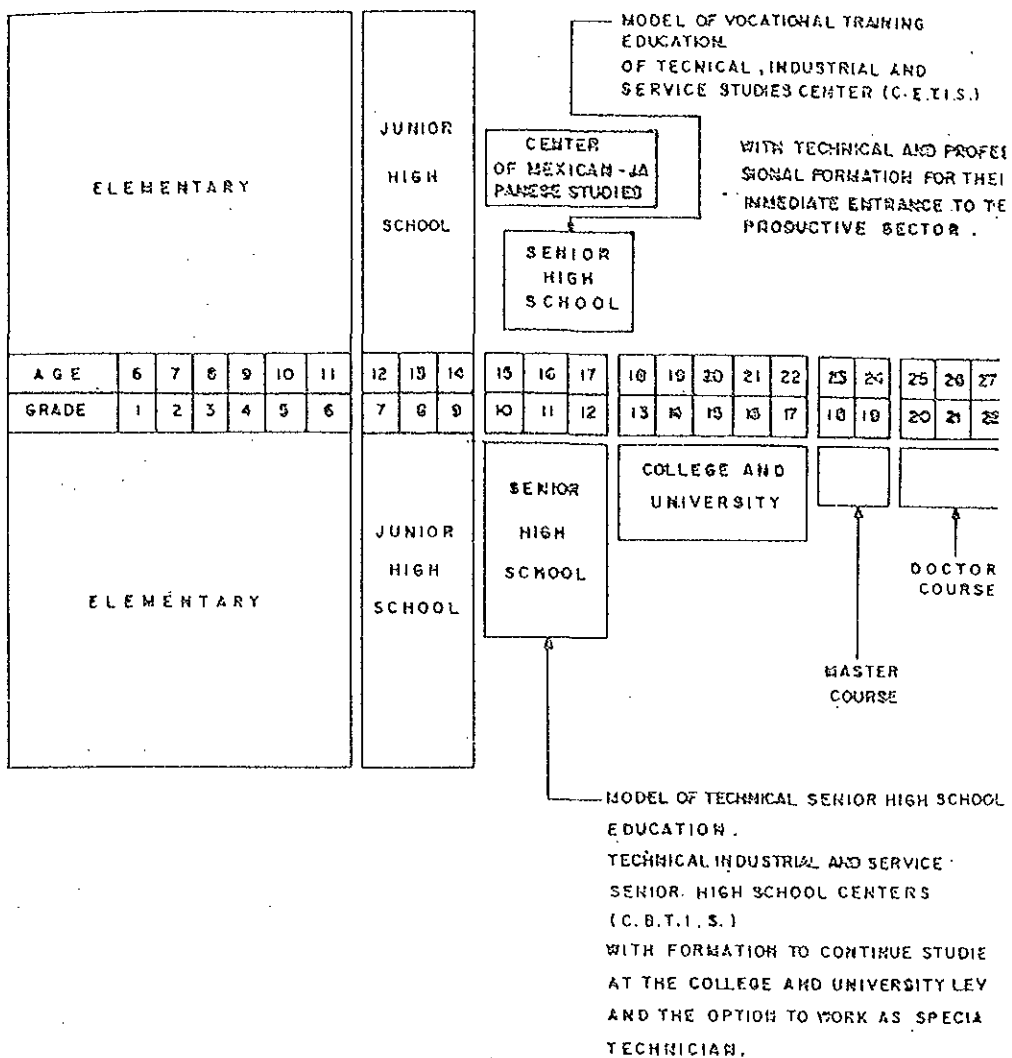
TECHNOLOGICAL AREA:

Physics	5	---	131	-----	131
Mathematics	5	---	135	-----	135
Chemistry	5	---	126	-----	126
Biology	5	---	107	-----	107
Probability and statistics	1	---	30	-----	30
Quality Control	1	---	30	-----	30

Circuits and electronic controls	1	--	30	-----	30
Computation	4	--	120	-----	120
Mechatronics	1	--	30	-----	30
Foundry	1	--	30	-----	30
Informatics	2	--	60	-----	60
Preventive Maintenance for scales	4	60	---	270	330
Preventive maintenance for microscopes	4	60	---	270	330
Industrial maintenance	1	--	30	-----	30
Machine tools	1	--	30	-----	30
Introduction to robotics	1	--	30	-----	30
Industrial security	1	--	30	-----	30
Welding	1	--	30	-----	30
Food technology	1	--	30	-----	30
Tourism	1	--	30	-----	30
Programming	-	50	---	375	425
School hygienics	1	--	32	-----	32
Training of cultural and sport programmers	1	--	32	-----	32
Introduction to science and technology		50	---	4,912	4,962
Biotechnology	1	--	30	-----	30
SUBTOTAL:	49	220	1,133	5,827	7,150

NOTE.- The courses take 40 hours and are integrated in a modular basis.

SCHOOL EDUCATION AND VOCATIONAL TRAINING

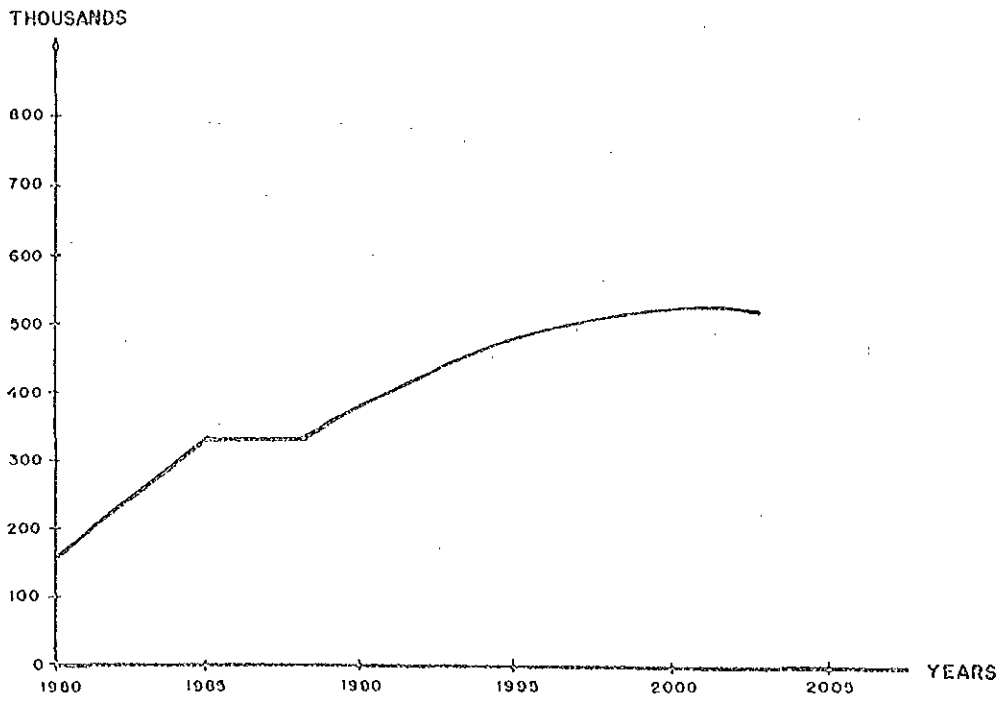


ANNEX 2

SEP

GENERAL ADMINISTRATION OF TECHNICAL AND INDUSTRIAL EDUCATION
SCHOOL POPULATION

SEIT



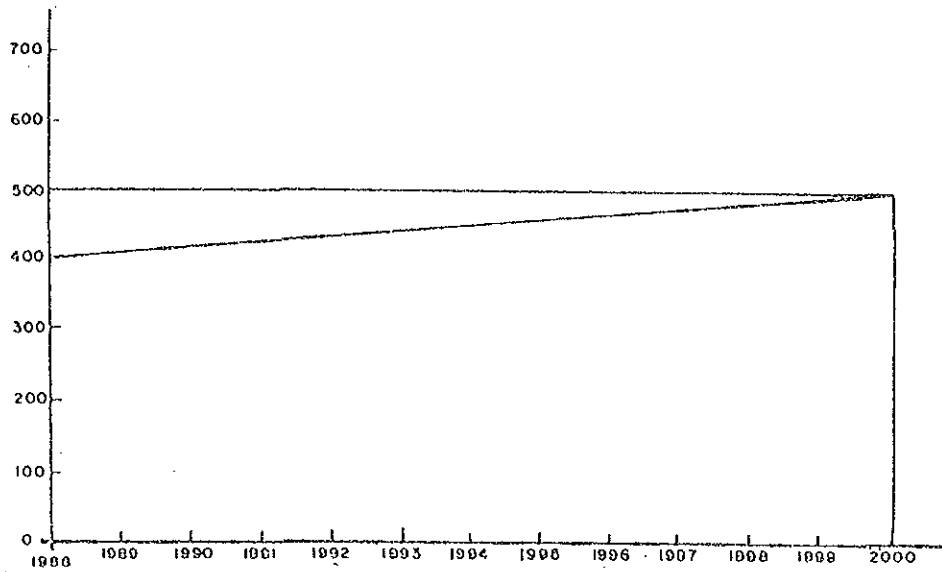
ANNEX 4

SEP

GENERAL ADMINISTRATION OF TECHNICAL AND INDUSTRIAL EDUCATION

SEIT

FORECAST OF SCHOOLS



ANNEX 6

SEP

GENERAL ADMINISTRATION OF TECHNICAL AND INDUSTRIAL EDUCATION
INCORPORATION OF TEACHERS

SEIT

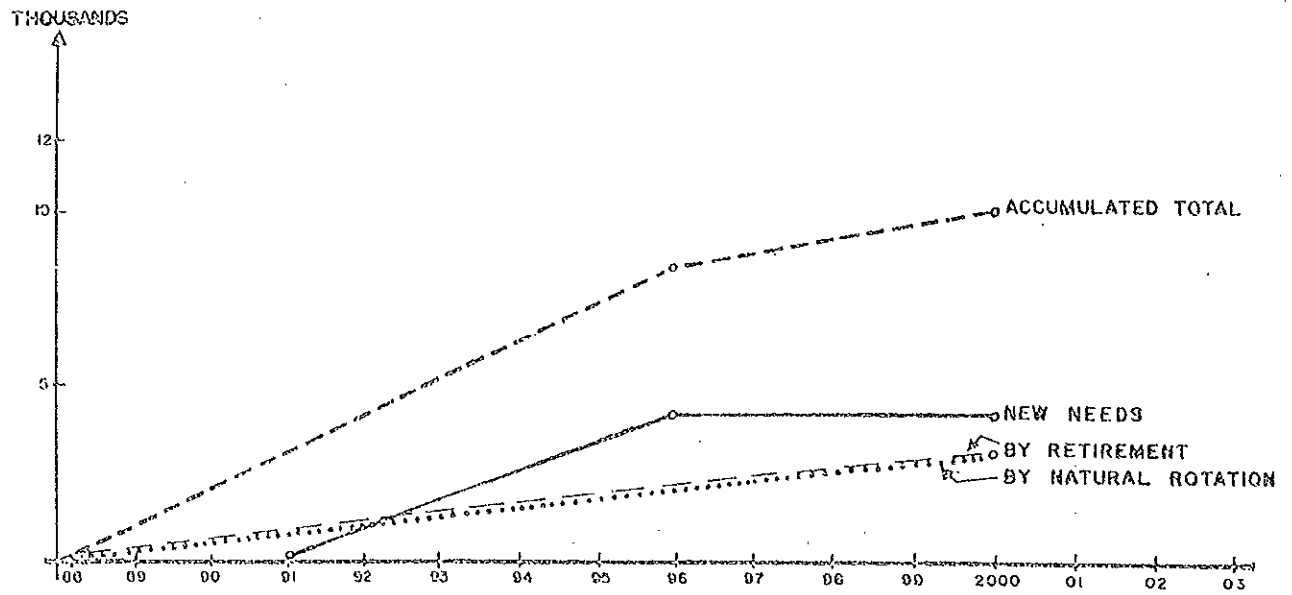


FIG. 8

ANNEX '8

ANNEX 7

Activities for the Japanese experts:

- To prepare academic profiles for the technicians in the different specialities.
- To elaborate study programs to train the technicians.
- To prepare academic and professional profiles for the faculty in the areas to define.
- To elaborate programs to train and update the faculty.
- Teaching of courses about technological subjects.
- Advising to carry out didactical courses.
- To advise for establishing the equipment guides for shops and laboratories.
- Selection of equipment for the center.
- To participate in the scholarship program and the evaluation process of scholarship candidates.

8-2 基礎調査団派遣時に提案された要請内容

MINISTRY OF PUBLIC EDUCATION,
UNDERSECRETARY OF TECHNOLOGICAL EDUCATION AND RESEARCH,
GENERAL ADMINISTRATION OF TECHNICAL AND INDUSTRIAL EDUCATION.

PROJECT TO ESTABLISH
A NATIONAL CENTRE FOR THE DEVELOPMENT AND TRAINING OF TEACHERS BELONGING
TO THE GENERAL ADMINISTRATION OF TECHNICAL AND INDUSTRIAL EDUCATION
WITH THE TECHNICAL COOPERATION OF THE GOVERNMENT OF JAPAN,
THROUGH THE JAPAN INTERNATIONAL COOPERATION AGENCY.

MARCH, 1993

PRESENTATION.

The General Administration of Technical and Industrial Education (The DGETI) is one of the branch of the Ministry of Public Education in Mexico and has a responsibility of educational activities at Senior High School level in the field of the Technical, Industrial and Service areas. There is a National Project for modernization of technical and industrial education. To achieve this requirements of advance and improvement DGETI had structured a National Training Program for Teachers. This program will brush up them up-to-date in the above mentioned field and will benefit the high quality of our education in Mexico.

Since there are some areas in which Japan has reached a high level of development and together with its education system, DGETI had proposed the collaboration between the Mexican and Japanese Governments, for the development and up-to-dating the avilities of teachers and pedagogical aspects in the following fields ;

- 1) Computers,
- 2) Electronics,
- 3) Mechatronics (Robotics),
- 4) Production Mechanics (machine tools), and
- 5) Automobile Mechanics.

as these fields are mostly considered of high priorities enhancing the technological and industrial development in Mexican society.

The ideas to consider the possibility of further cooperation from the Government of Japan, have been struck upon DGETI through the good results gained from the technical cooperation in the Centre of Technological Studies Mexico-Japan (1982-1987) in Celeya City, Guanajuato.

The document that is presented to the Government of Japan for creating this Centre, is devided into two parts ;

- 1) We talk about the characteristics of the educational subsystem under the DGETI in the first part.
- 2) The above serves as a reference frame to the cooperation project to the Government of Japan, thus we present in the second part.

1) REFERENCE FRAME

The General Administration of Technical and Industrial Education (The DGETI) is a branch of the Educational System dependent of the Under secretary of Technological Education and Research, of the Federal Government of the United Mexican States.

We present a diagram of the Ministry of Public Education in annex one, where we find the structure of DGETI.

The DGETI has as main purpose the development of skilled technicians, to develop, to strengthen and to maintain a technological culture and its own services and industrial infrastructure to support the country's social and economic requirements to growth.

This subsystem offers educational services into modalities:

- *Technological high school (College oriented).
- *Professional Technician (Vocational oriented).

In annex two, we present a simplified diagram locating the senior high school level of education in terms of people's age, years of schooling and its relationship with the different school levels in Mexico.

In order to fulfil those functions, the DGETI develops the programs for :

- A) Technical Senior High School Centres (Duration is 3 years).
- B) Vocational Training Centres (Duration is 3 or 4 years).

The Technical Senior High School projects has dual purposes ;

- a) To provide the students with the indispensable knowledge that will enable them to continue superior studies at a bachelor of science level, and
- b) To provide the students with the sufficient knowledge and the related abilities in a specific area of technology with which they would be come qualified personels for technical functions in the productive sector.

When the vocational training students get their degree, they have to take advantages immediately for direct destinations to the productive sectors. The DGETI also operates the areas of specialities related to the industrial and services sectors.

In the 1990-1991 school year, the population of students in DGETI was 402,411. 332,715 students chose the technical high school mode and the other 69,696 of them the vocational training mode.

The former means that the DGETI covers a half of the students population registered in the senior high school level of the National System of Technical Education covered by the Undersecretary of Technological Education and Research, therefore the remaining students are attended by five different institutions.

Nowadays, the DGETI offers a complete field of possibilities to the students as which there are about 70 courses in the vocational training mode, and those correspond to the industrial and service fields.

In the technical senior high school mode three basic knowledges areas are covered; those are Physical-Mathematics, Chemical-Biology and Economical administration.

The technical option, that complements the former, is related to the area of knowledge and it covers about 40 specialities.

The courses and specialities that the DGETI offers to the industrial and services sectors, have the purpose to prepare technicians for extractive and transformation industries, and the administrative, commercial and personnel for the health institutions in the service area.

The technical orientation of the DGETI is intimately linked with the characteristics of the technical development in our country; especially in the following five areas, computation, electronics, mechatronics, production mechanics (machine tools) and automobile mechanics, the student population is about 20% of the national total clear perspectives of growth for the next era.

To satisfy those purposes, the DGETI operates 417 schools in the all states; 252 of them are named CBTIS (Technical Senior High School Centre), the rest are named CETIS (Vocational Training Centre).

The faculty consists of approximately 19,700 teachers, made up with largely by technicians at high school level or with B.S. studies.

The previous needs have led us to develop a program of national coverage for the training and up-dating of the faculty of the DGETI. It is in that frame of reference that we state as a priority the areas of computing, electronics, mechatronics, production mechanics (machine tools) and automobile mechanics.

2) COOPERATION BY THE GOVERNMENT OF JAPAN

The creation of a Mexican-Japanese Centre for Updating the faculty is an action that will allow the General Administration of Technical and Industrial Education (the DGETI), to have the teachers who will give impulse to this national project : the creation of capable technicians with the proper attitudes that will be required by the country in the future years.

The technical areas that will be covered by the Centre are ;

- Computing.
- Electronics.
- Mechatronics (Robotics).
- Production Mechanics (Machine tool).
- Automobile Mechanics.

They have been considered first priorities in the general project of development by the DGETI, due to their relationship with the technical and industrial developments in Mexico.

The reference frame of this project is the program of technical cooperation offered by the Japanese Government, in terms of the agreement on technical cooperation between Mexico and Japan, published in the Mexican Official Diary of December 9, 1987 which says ; The Government of Japan will carry out at its own expense the following forms of technical cooperation according to its laws and actual rules.

- A) To receive Mexican nationals to their technical training in Japan.
- B) To send Japanese experts to Mexico, who will be called as "The Experts", herein after.
- C) To send Japanese missions to Mexico to perform studies of projects which will herein after called as "The Missions", for the social and economic development of the country.
- D) To provide equipments and machineries, and also the materials of pedagogical training to the Mexican Government.
- E) Japan will provide any technical cooperation that both Governments mutually agree upon with.

3) TARGETS OF THE CENTRE

The general goals for the centre, as a result of Japanese cooperation for which consider a minimum of 15 years of its activity, can be summarized as:

- A) Preparation of teachers in order to meet the needs, in quality and quantity, of the DGETI that originate as a consequence of :
 - a) Its process of growth,
 - b) Its natural process of renewal of their faculty.

- B) The updating of teachers in service that need due to their professional background ;
 - a) A complementary pedagogical instruction,
 - b) A complementary technical instruction.

In order to obtain the best results in the educational process and in response to the development of the different technical fields.

- C) Updating of the curriculum for the preparation of technicians at selected areas; in this way the updating will be a continued and permanent process in the educational system under the DGETI.

- D) Producing the Audio-Visual materials of the technical and industrial education not only for the purpose of this Centre, but for another Centres in DGETI also.

- E) Making up good relations with the private enterprises to modernizing the Centre continuously.

4) GENERAL OBJECTIVES

The general objectives of the Centre are as follows ;

- A) To elaborate and design the programs towards the technical and pedagogical training and updating of the faculty in the areas of ;
 - Computing,
 - Electronics,
 - Mechatronics (Robotics),
 - Production Mechanics (Machine Tool),
 - Automobile Mechanics.
- B) To carry out the courses in preparation and updating of the present and new faculty members of the DGETI, according to the population objective determined by the national program.
- C) To carry out towards the targets, it will be offered a course program for the faculty in order to increase by this way their skills levels.

5) SPECIFIC GOALS

The Centre will perform courses for the upgrading and specialization of teachers.

Up-grading courses; Their goal is to offer to the teachers the opportunity of renewing their knowledges in different fields and specialities pertaining to the services which are offered by the DGETI.

The Centre will also produce the training materials for the specialized purposes :

- a) Audio-Visual aids; Video tapes, transparency sheet for OHP, slide films for projectors, etc.
- b) Text books; Appropriated and up-to-dated texts for the students and for the teachers as the manual.
- c) Guide books; Pedagogical training materials for the teachers and for the students who are going to be a teacher.

6) FIELDS

The Centre also has the purpose of updating faculties in different fields, providing them with a broader knowledges in a certain area and training them in the skillful practices of them.

This updating must be provided after the national modernization project because of improving teacher's levels and abilities are indispensable.

The proposed courses are intended to be integrated into modules to provide more flexible operations.

The following is a general scheme of the possible courses.

AREA	MODULES	DURATIONS
COMPUTING	MODULE I	120 hours.
	MODULE II	120 hours.
ELECTRONICS	MODULE I	120 hours.
	MODULE II	120 hours.
MECHATRONICS	MODULE I	120 hours.
	MODULE II	120 hours.
PRODUCTION MECHANICS	MODULE I	120 hours.
	MODULE II	120 hours.
AUTOMOBILE MECHANICS	MODULE I	120 hours.
	MODULE II	120 hours.
PEDAGOGICAL UPGRADING COURSES	MODULE I	60 hours.
	MODULE II	60 hours.
	MODULE III	60 hours.

[Note] One module has normally 120 hours as 6 hours a day, 5 days a week, for 4 weeks except pedagogical training courses.

7) ACTUAL COURSES OFFERED BY THE CENTRE

The followings are general courses offered by the Centre.

A R E A	MODULES	ANNUAL QUANTITIES OF COURSES	ANNUAL QUALIFIED TEACHERS
COMPUTING	MODULE I	6	240
	MODULE II	6	240
ELECTRONICS	MODULE I	6	120
	MODULE II	6	120
MECHATRONICS	MODULE I	6	120
	MODULE II	6	120
PRODUCTION MECHANICS	MODULE I	6	120
	MODULE II	6	120
AUTOMOBILE MECHANICS	MODULE I	6	120
	MODULE II	6	120
PEDAGOGICAL UPGRADING COURSES	MODULE I	7	140
	MODULE II	7	140
	MODULE III	7	140

These schedules are tentative, however, according with the previous program this centre would train a total of 1,860 teachers of DGETI per each year.

8) NATIONAL STAFF OF THE CENTRE

A) Direction.

- a) Dean (*) 1
- b) Director (Or Sub-Dean) 1
- c) Chieves of the sections 4
 Head teacher, Development assistance(Vinculation), Library,
 General affairs(Administratiions).

(It will be desirable that the General Director or the Director of the DGETI holds the concurrent post of Dean.)

B) Teaching staff. (Under the Head teacher.)

- a) Full time teachers for the following fields at the final stage.

	<u>Number of teachers for speciality.</u>
Computing	7
Electronics	7
Mechatronics	7
Production mechanics	7
Automobile mechanics	7
(Profesor	1,
Assosiate Profesor	1,
Lecturer	3,
Assistant lecturer or Technicians	2
Total	= 7)

- b) 35 full time teachers will assist in the pedagogical area.

C) Development assistance section will take part in the sevices of vinculations and looking for industrial training on site for teach_ers, and in order to keep the good relations with private enterpri_ses to look for the social needs of the trainings.

D) Supporting staff.

- a) The appropriate numbers of staff to the library, laboratory, Audio-Visual aids and administrations, etc.

9) MASTER PLAN

The project will be performed according to the next master plan.

A) Cooperation during five years between both Governments in the execution of the plan.

B) Administration of the Centre by the General Administration of Technical and Industrial Education "DGETI".

C) Specialities:

- Computing.
- Electronics.
- Mechatronics (Robotics).
- Production Mechanics (Machine tool).
- Automobile Mechanics.

Each training speciality is consist of a teaching staff, laboratory, workshop(s), class rooms and etc.

D) Assistance of Japanese Expertas.

The Government of Japan will provide, through the Japan International Cooperation Agency "JICA", the team leader, the appropriate expert for the development assistance(vinculation), the necessary experts for each specialities indicated above, the appropriate experts for the Audio-Visual aids, the well experienced experts for pedagogical education, and short time experts for the Quality control, production engineering and etc.

We are considering the experts collaboration during 5 years which technical teaching will have effects short, medium and long term.

E) Mexican Personnel.

DGETI will provide enough personnel for carrying out this project according with the management, teaching, administrative and service areas.

F) Installation.

The Mexican counterpart will take the necessary actions to provide the appropriate installations, in the place selected to build the Centre.

G) Location of the Centre.

Due to the dimension of DGETI's Subsystem that operates the high school level education in the whole country, it is necessary to locate strategically the national centre.

One of the following locations will be proposed;

Pachuca, Hidalgo.
Cualtepec, Morelos.
Puebla, Puebla.
Querétaro, Qro.

All these places, besides their nearness to the Federal District, have an industrial structure which would help the candidate's atmosphere in the courses that the centre will offer.

Annex 8 shows the geographical location of the four cities proposed for the centre.

H) Machinery and equipment supply.

The Japanese counterpart, according to the normal procedures of technical cooperation through "JICA", will provide the enough machineries and equipments needed to operate the project.

The Mexican counterpart will supply the furnitures and equipments agreed.

I) Scholars. (Counterpart training in Japan.)

The Japanese Government will receive scholars for specialization courses in Japan, selected by the Mexican administration and the Japanese mission team to the centre.

In this respect, it is considered that the Government collaboration means a total of about 360 scholar-months. It will be considered that the itemized candidates of scholars are 7 instructors or teachers of 5 different specialities each, one from the development assistance division, two from the audio-visual aid division and two from the pedagogical training division, then 40 candidates in total for each 9 month training in Japan including Japanese language.

J) Financial resources.

The economic resources for operating the project, will be provided by DGETI through the stabilized procedures.

The centre will elaborate an yearly budget program of incomes and expenses; the exercise of that budget will be subjected to current orders based on the authorized budget to DGETI.

K) Administration of the project.

For operations the centre, a fifteen year management program will be established for planning, to execute, direct, control and evaluate the right progress of the project.

L) Organization.

The centre will have a technical board of Directors integrated by the General Director and the DGETI Area Directors.

In the following level will be located the Director of the centre. The Japanese delegation team will be as the staff functions.

The centre will be integrated with the following areas:

- Training (Academic) : in charge of the training programs and academic improvement of curriculae.
- Administrative : in charge of the human, financial, material resources, services and control the supply and equipment for operating the centre.
- Development assistance (Planning and evaluation) : will carry out the planning and evaluation of the management program, statistics, information from the private sectors, etc.
- Planning Audio-Visual materials : in charge of the development of training materials such as text books, video tapes, slide films and OHP transparencies, pedagogical guidebooks, prototype model development, etc.
- Library : in charge of the collecting books and the training materials from all centres in the States and/or from the other countries for the purposes of data library with normal services of library.

M) Bilateral evaluation committee.

The bilateral evaluation committee will be integrated by officials designated by the Japanese and Mexican Governments with the following functions :

a) To supervise the project advance.

b) To analyze the joint actions taken in;

- Sending of experts.
- Scholarships program.
- Machinery and equipment supply.
- Building of the necessary installations for operating the project.
- The adequate economical resources for operating the centre.
- The counterpart of Mexican personnel.
- The utilization of the equipment supplied.

c)Elaboration of an annual operating program.

d)To recommend the necessary actions for the best operating of the project.

N) Step by step system.

The establishment of the new Centre is eagerly requested as the national projects, hence, the updating will be systematically offered until all the faculties in each erae receive this short term courses.

8-3 グアナファト主要企業一覽

GUANAJUATO

PRINCIPALES EMPRESAS ESTABLECIDAS EN EL ESTADO

EMPRESA	ACTIVIDAD
* CEMENTOS LEON	FAB. DE CEMENTO
* ALCOSA	IND. ALIMENTICIA
* ANDERSON CLAYTON	IND. ALIMENTICIA
* ARANCIA	IND. ALIMENTICIA
* BACHOCO	IND. ALIMENTICIA
* BIMBO DEL CENTRO	IND. ALIMENTICIA
* BIRDS EYE DE MEXICO	IND. ALIMENTICIA
* CAMPBELL'S DE MEXICO	IND. ALIMENTICIA
* GOVEMEX	IND. ALIMENTICIA
* DIPASA	IND. ALIMENTICIA
* EMPACADORA GRAL DEL BJ	IND. ALIMENTICIA
* FREVEG	IND. ALIMENTICIA
* GAMESA	IND. ALIMENTICIA
* GIGANTE VERDE	IND. ALIMENTICIA
* MASECA	IND. ALIMENTICIA
* PAUSTERIZADORA LEON	IND. ALIMENTICIA
* PRODUCTOS FRUGO	IND. ALIMENTICIA
* PRODUCTOS DEL MONTE	IND. ALIMENTICIA
* PROTABSA	IND. ALIMENTICIA
* BLASITO	IND. ALIMENTICIA
* BOTAS FOX	IND. CURTIDURIA Y CALZADO
* BOTAS JACA	IND. CURTIDURIA Y CALZADO
* CUEROS IND. DEL BAJIO	IND. CURTIDURIA Y CALZADO
* DESTROYER	IND. CURTIDURIA Y CALZADO
* ENYCO	IND. CURTIDURIA Y CALZADO
* FLEXI	IND. CURTIDURIA Y CALZADO
* LOREANO	IND. CURTIDURIA Y CALZADO
* MFRA. DE CALZADO SAN DIEGO	IND. CURTIDURIA Y CALZADO
* SUELAS MEDINA TORRES	IND. CURTIDURIA Y CALZADO
* SUELAS WYNY	IND. CURTIDURIA Y CALZADO
* TENERIA CONTINENTAL	IND. CURTIDURIA Y CALZADO

GUANAJUATO

PRINCIPALES EMPRESAS ESTABLECIDAS EN EL ESTADO

EMPRESA	ACTIVIDAD
* ACROTEC	METAL MECANICA
* ARBOMEX	METAL MECANICA
* ACUMULADORES MONTERREY	METAL MECANICA
* COBRECEL	METAL MECANICA
* COBREMEX	METAL MECANICA
* CONTICON	METAL MECANICA
* ESTUFAS Y REFRIGERADORES NACIONALES (GRUPO VITRO)	METAL MECANICA
* INDUSTRIAS CORELMEX	METAL MECANICA
* MOTOROLA	METAL MECANICA
* PRODUCTOS ESTAMPADOS DE MEXICO (GRUPO DESC)	METAL MECANICA
* SKF. DE MEXICO	METAL MECANICA
* TRANSEJE (GRUPO DESC)	METAL MECANICA
* TRANSFORMADORES FERRANTI P. DE MEX	METAL MECANICA
* VELCON (GRUPO DESC)	METAL MECANICA
* VISTAR	METAL MECANICA
* CELANESE MEXICANA	QUIMICA
* Co2 DE MEXICO	QUIMICA
* CARBO QUIMICA	QUIMICA
* FERTIMEX	QUIMICA
* FERRO MEXICANA	QUIMICA
* LIQUID CARBONIC DE MEX.	QUIMICA
* NEGROMEX	QUIMICA
* REFINERIA CALAMANCA	QUIMICA
* POLIVIN	QUIMICA
* QUIMICA CENTRAL DE MEX.	QUIMICA
* QUIMICA Y DERIVADOS	QUIMICA
* UNIVEX	QUIMICA
* CASIMIRES SORIA	TEXTIL
* LA CAROLINA Y REFORMA	TEXTIL
* PRODUCTORA TEXTIL	TEXTIL

8 - 4 収集資料リスト

	Español	English
1.	Secretaría de Educación Pública	Secretary of Public Education
	Sistema Nacional de Educación Tecnológica (技術教育のための公共教育制度の省 (概況))	National System for Technical Education
2.	Escuelas y Carreras (Catálogo 1991-1992) Estados de la República Mexicana (メキシコ合衆国学校及び指導科目1991~1992年)	Schools and Carrers (Catalog 1991-1992) State of the Rep. of Mexico
3.	Sistemas de Información Industrial (総覧) Comercio Exterior (情報産業システム輸出)	Systems of Industrial Information and Foreign Trade.
4.	Transformación (転換)	Transformation
5.	Cursos 1992 Dirección General de Educación Tecnológica Industrial (コース1992 DGETI工業技術教育局)	Courses 1992 General Direction of Technical Industrial Education
6.	Cursos 1993 FASE-I Dirección General de Educación Tecnológica Industrial (コース1993 フェーズ I DGETI工業技術教育局)	Courses 1993 PHASE-1 General Direction of Technical Industrial Education
7.	Escuelas y Carreras (catálogo 1991-1992) Distrito Federal y Area Metropolitana (首都圏特別区学校及び指導科目)	Schools and Carrers (Catalog 1991-1992) Federal District and Metropolitan Area
8.	Secretaría de Educación Pública	Secretary of Public Education
	Estadística Básica	Basic Statistic
	Sistema Nacional de Educación Tecnológica 1991-1992	National System of Technical Education 1991 - 1992
	Inicio de Cursos (教育省技術教育基礎統計1991~1992初級コース)	Beginning of the courses
9.	Dirección General de Educación Tecnológica Industrial	General Direction of Technical Industrial Education
	Coordinación Estatal- 13 Hidalgo (工業技術教育第13番州イダルゴ)	State Coordination-13 Hidalgo
10.	Informe de Avance sobre la Modernización de la D.G.E.T.I. (工業技術教育局近代化のための進展状況報告)	Advance Report on the modernization of D.G.E.T.I.
11.	Dirección General de Educación Tecnológica Industrial-Dirección Técnica	General Direction of Technical Industrial Education - Technical Direction
12.	Catálogo (工業技術教育局技術部) Prototipos Didácticos (原型職業訓練機器一覧) (-工業技術教育局-)	Catalog Educational prototype

13.	Instituto Politécnico Nacional	National Science and Engineering Institute Secretary of the Institute
	Secretaría Académica	
	Dirección de Estudios Profesionales (国公立大学カリキュラム)	Direction of Professional Studies
14.	Instituto Politécnico Nacional	National Science and Engineering Institute Guide of Carrers 1987
	Guía de Carreras 1987	
	(国公立大学カリキュラム1987)	
15.	Instituto Politécnico Nacional	National Science and Engineering Institute
	Perfil Profesional de Carreras del Instituto Politécnico Nacional Nivel Profesional - 1990	Professional Profile of Carrers of the National Science and Engineering Institute - 1990
	(工科大学付属高校カリキュラム1990)	

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