

**THE ESTABLISHMENT OF
THE LOWER NORTH - EASTERN
REGIONAL INSTITUTE FOR SKILL
DEVELOPMENT IN THAILAND**

Questionnaire

The following information and data are required to study the feasibility of the technical cooperation concerning the establishment of the Lower North - Eastern Regional Institute for Skill development in Thailand (hereinafter referred to as "the Project")

1. Background and Justification of the Proposed Project

(1) The manpower and employment objectives of the Fifth National Economic and Social Development Plan for 1982 - 1986 are to strike a balance, between manpower supply and demand and to generate employment opportunities equivalent to the increase in the labour force. Employment opportunities must be generated in both rural and urban areas to counteract the continuous migration to the towns.

Directions for the Sixth National Economic and Social Development Plan (1987-1991)

A. Directions for labour development

The Cabinet has approved the directions for the Sixth National Economic and Social Development Plan (1987 - 1991) since August 30, 1985. The directions include the development of labour system so that labour will be developed in consistence with economic and social development and the national target can be achieved more rapidly and efficiently. The quality of life of the people as a whole will also be improved in line with the minimum standards in the long run. Two Programmes for labour and manpower development have been set for implementation namely, the programme on social development, manpower and labour development and the programme on production development, marketing, technology and employment creation.

Manpower and labour development

The plan shall be emphasised on the production of manpower in consistence with labour demand of the market and slowdown the production of manpower who are facing severe unemployment. Self-employment shall be promoted to create more employment opportunities. Trying to maintain overseas labour market and seeking new labour market overseas for Thai workers.

Efficiency improvement and extension of administration shall be made in the fields of labour protection, women and child workers, occupational safety and health, labour relations, wage structure and administration.

Employment Creation Scheme

Export-oriented industries shall be promoted along with small-scale industries and rural cottage industries basing on Local resources endowment. In order to improve the efficiency and expansion of small-scale and rural cottage industries, financial credit and modern appropriate technologies shall be introduced and promoted intensively.

According to service sector, the plan shall emphasise on such activities which can generate more employment opportunities for educated manpower. In agricultural production, labour and draughted animals shall be employed rather than using labour-saving machines.

B. Directions for the development of Urban and specific areas

An important policy of the Government concerning the development of urban and specific areas which have been implemented in the Fifth Plan (1982 -1986) is to complete within the Sixth Plan period. According to

the Fifth Plan, regional urban growth centers and low-order centers shall be developed to be development centers of each region and the primary source for employment creation. For the lower North-Eastern Region, Ubon-Rachathani and Surin Provinces are selected as the Centers for decentralising growth and development.

Measures

1. To develop small-scale industries in the afore-mentioned cities to be the bases for absorbing surplus labour from agricultural sector.

2. To develop manpower and labour in accordance with labour demand both in industrial and agricultural sectors.

Project will play major role to:

1. Skill training programmes for out of school youth who are unemployed to enable them to enter into the labour market.

2. To upgrade the skill standard of the workforce to increase productivity and to ensure the possibility for their vertical and horizontal mobility.

Development Programmes

3. Rural Vocational Training to serve the National Policy of Rural/

4. To develop relevant skill training programmes to meet the requirement of labour market and local conditions.

5. To encourage industrial establishment to play more active part in skill development programmes.

6. To implement the skill testing and certification in accordance with the National Trade Standard.

Direction and plan for the national economic and social development of the sixth Five-Year plan are to promote and develop the quality of human resources in rural areas.

(2) The Project was given high priority by Thai Government.

It is an urgent need of the country to develop skills for young people as well as existing workers in order to help them finding both employment and self-employment in the localities.

The Economic Ministers Committee Meeting on Feb, 17, 1986 approved the Report of Meeting of the Joint Committee of the Government and Private Sectors held at KhonKaen Province (24 - 26 JAN 1986) saying :-

Section 12. The Ministry of Interior and the Budget Bureau jointly consider counterpart fund for supporting of the establishment of Ubon Rachthani Institute for Skill Development. This project has been accepted for consideration by the Japanese Government.

(3) The economic and social influence of the Project

1. Higher practical skills that will bring about higher wages and income for poor workers

2. Decreasing rate of migration for graduates of the Project are able to work in the small - scale industries and to work by own account (self-employed).

3. Graduates of the Project can continue their careers by upgrading training to be able to pass Trade Test. The ones who possess Grade 1 of Trade Certificates are regarded as the TOP of the Trade. They are equivalent to graduates from universities but they are better in skills.

2. Industrial circumstances and labour condition

- (1) Total number of population by sex, age and region in Thailand. See annex Table No. 1
- (2) Increase rate of population in Thailand now is 2.0.
- (3) Working population by sex, age, industry and region in Thailand. See annex Table No. 6
- (4) Total number of the unemployed by sex, age and region in Thailand. See annex Table No; 7
- (5) Total number of industries by category, scale and region in Thailand. (Breakdown in the Lower Northeastern Region) See annex Table No. 4.
- (6) According to the Labour Law, the minimum wage is announced on January 1, 1935 as follows:

Daily Wage (Baht)	Enforcement Provinces
70	1) Bangkok and ^{nearby} 5 warty Provinces
65	2) Ranong, Phang-Nga, Phuket
59	3) Choburi, Saraburi, Nakhon-Ratchasima, Chieng-Mai
	4) Others Provinces (excluding in 1, 2 and 3)

- General office-hour 8 hrs./day
- Over 8 hrs./day will be over-time payment
- Employment rate per day according to the type and scale of Industries or enterprises as shown :-

Average Daily Earnings for Unskilled Workers by Type of
Industries in the Northeastern Region : 1983

Type of Industries	Large Scale Industries	Medium Scale Industries	Small Scale Industries
1. Manufacturing	63	57	57
2. Food and Beverage	60	62	57
3. Textile and wearing Apparel	34	43	55
4. Wood, Wood Product and Furniture	-	55	56
5. Paper, Paper Product and Printing	67	-	56
6. Chemical, Petroleum, Rubber etc.	-	45	53
7. Non-Metallic, Pottery etc.	-	50	54
8. Iron, Steel and Basic Metal Products	-	-	-
9. Machinery, Equipment etc	-	57	57
10. Other Manufacturing Industries	-	-	49
11. Construction	63	63	55
12. Wholesale Trade	-	63	60
13. Retail Trade	-	63	57
14. Services	-	61	55
15. Restaurants and Hotels	-	61	49
16. Transport, Storage and Communication	-	54	55
17. Other Services	-	76	63
18. Mining	-	60	-
All Industries	63	60	56

(7), (8) Future prospect and trends concerning the industrial circumstances and labour condition in the Lower North Eastern Region

There are 1,413 industrial factories established in the Northeastern Region in 1984 which is 29.1% of the new industrial factories of the whole country (4,857 factories)

Almost of the requirements to the Board of Investment are service business : hotel, hospital and other industries such as production of bicycle spareparts, gen cutter and polish production etc. The expanding of service business and tourist business are higher than the other sectors in this Region.

The 6th National Economic and Social Development Plan objectives is to promote the increasing of the industrial investment and economic activities in the major city of the Northeastern Region which will develop and give some incentives for small scale and regional industries especially the tourist business and to promote market processing in the Region.

The industries that should be interested are the food and beverage manufacturing for the Eastern Sea Board area.

The increasing rate of industries in Northeast Region from 1981 - 1985 is 13.70% .

In 1985, the requirement of employees in lower Northeastern from Regional Labour Offices were 6,227 positions, the placement were only 5,475 persons, the balance was 752, because of shortage of skill workers.

Number of Industries in Northeastern Region

1981 - 1984

Industries	1981	1982	1983	1984	Ratio of 1984	Increase Rate 1981-1984
1. Rice Mills	16,913	23,633	25,412	26,490	81.2	28.53
2. Tapioca Mills	2,010	2,051	2,153	2,195	6.7	2.91
3. Machinery and Transportation Equipment	1,440	1,522	1,720	1,872	5.3	3.14
4. Food and Beverage	423	432	541	557	1.7	9.14
5. Non-Metallic Mineral Products	202	224	252	422	1.3	27.24
6. Metal Products	203	310	363	414	1.3	13.13
7. Wood Products	246	263	280	293	0.3	4.42
8. Jute Mills	144	147	143	149	0.4	3.99
9. Cotton and Textile	45	46	55	63	0.3	11.37
10. Others	401	143	120	103	0.5	- 25.71
Total	22,131	23,870	31,200	32,612	100	19.70

Source : Economic Development of Northeastern Center

(9) Demand of Manpower of Northeastern Region; see annex Table No. 8

(10.) The role of the Regional Labour Officer play for job placement to graduates of the Regional Institute for Skill Development

Quotas of trainees are provided for each province in Regions. They are selected by the provincial Labour Officer. Therefore, after graduation trainees will be sent back to respective provinces for in-plant training. Afterwards they can get employment in those establishments, Provincial Labour Offices must take care of their selected trainees.

(11.) The graduates from the Regional Institute are able to find job in Bangkok according to job opening and circumstances of the labour market. Labour Market Information Centre will provide employment information to the people, they may choose to work in Bangkok or in local areas.

3. Present Technical & Vocational Training Situation and Educational System in Thailand

1. Educational System

The school system comprised of six-years of compulsory primary education (grades 1-6), followed by three years lower secondary (grades 7-9) and three years of higher secondary (grades 10-12) in general education. Following the lower secondary education three years of upper secondary education (grades 10-12) in vocational education is an alternative. Secondary education is not compulsory. Higher education is offered by the universities, technical institutes, teacher training colleges and other institutions with specialized post-secondary programmes.

2. Vocational and Technical Education

Vocational education at the upper secondary level (grades 10-12) is provided by most of the Vocational Technical Institutes, by about 173 public and private industrial colleges, 52 agricultural colleges, 261 commercial colleges and 90 for home economic, art and crafts colleges. The objective of such education is to give students sufficient preparation employment skills training in selected trades, and to prepare more able students for entry into Technical Level (grades 13-14)

Technical Institutes in Thailand offer a great variety of technical and commercial courses both at the upper-secondary level (grades 10-12) and at the post secondary level (grades 13-14). The courses cover a wide range of trade skills and knowledge. All Technical Institutes come under the jurisdiction of the Department of Vocational Education, Ministry of Education.

Technical level courses for industrial technicians are offered in many Technical Institutes, Vocational Training Institutes and three campuses of King Mongkut's Institute of Technology (KMIT) which is a degree granting institution.

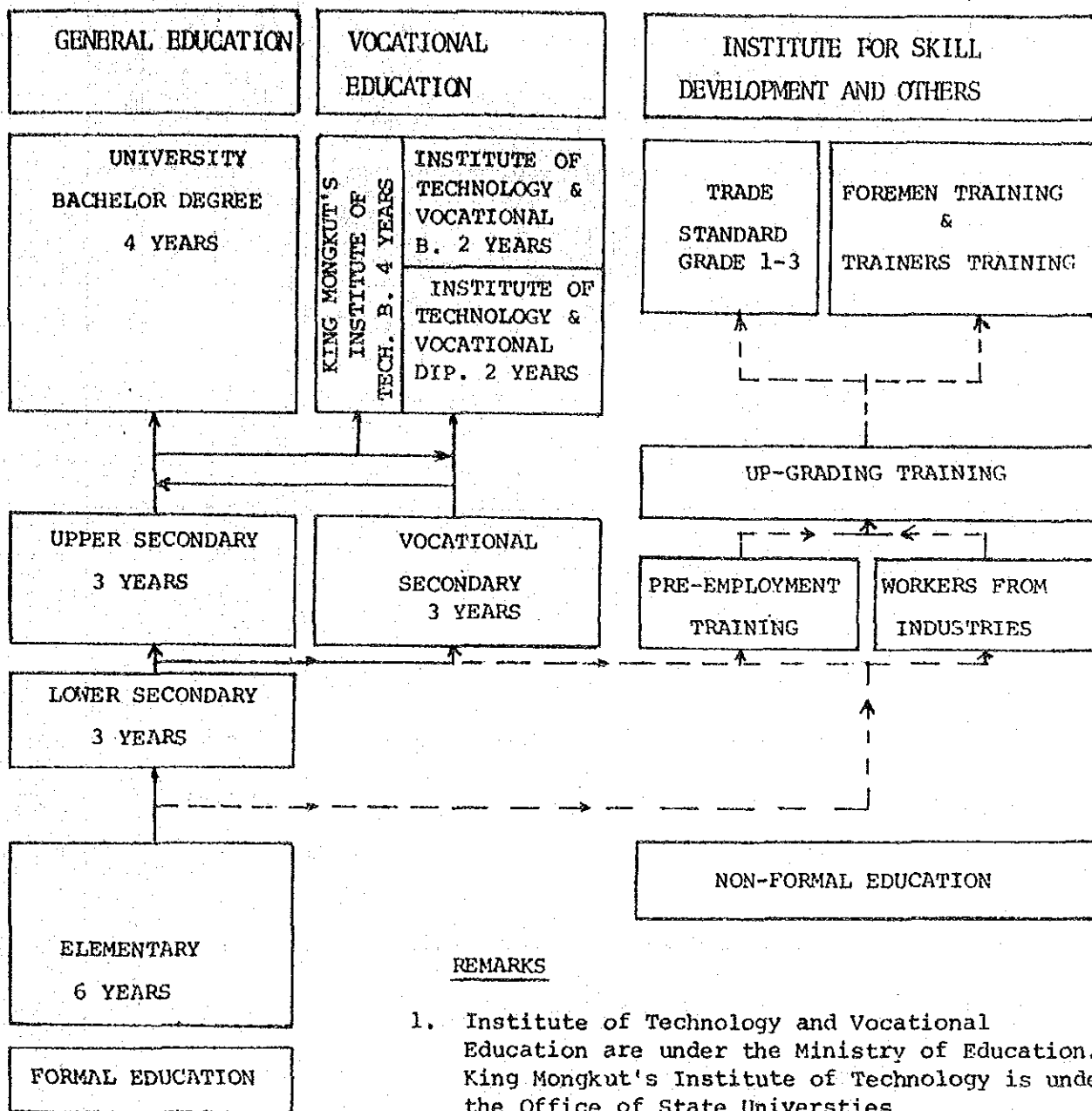
3 Higher & University Education

Universities and the Colleges in Thailand admit students almost exclusively from the general secondary schools. There are 11 universities and 2 degree-granting institutions in Thailand.

Education and training systems are expected to be modified to promote tighter articulation among various development programmes and projects.. More equal opportunity and right to obtain educational and training services will be laid down. Out-of-school education will be expanded and will include vocational training relevant to local needs. One of the major and important policy as stipulated in the plan is to raise the quality of the labour force, in conformity with the labour requirements of the country so that productivity is raised.

THAILAND EDUCATIONAL SYSTEM CHART AND THE ROLE OF

THE DEPARTMENT OF LABOUR



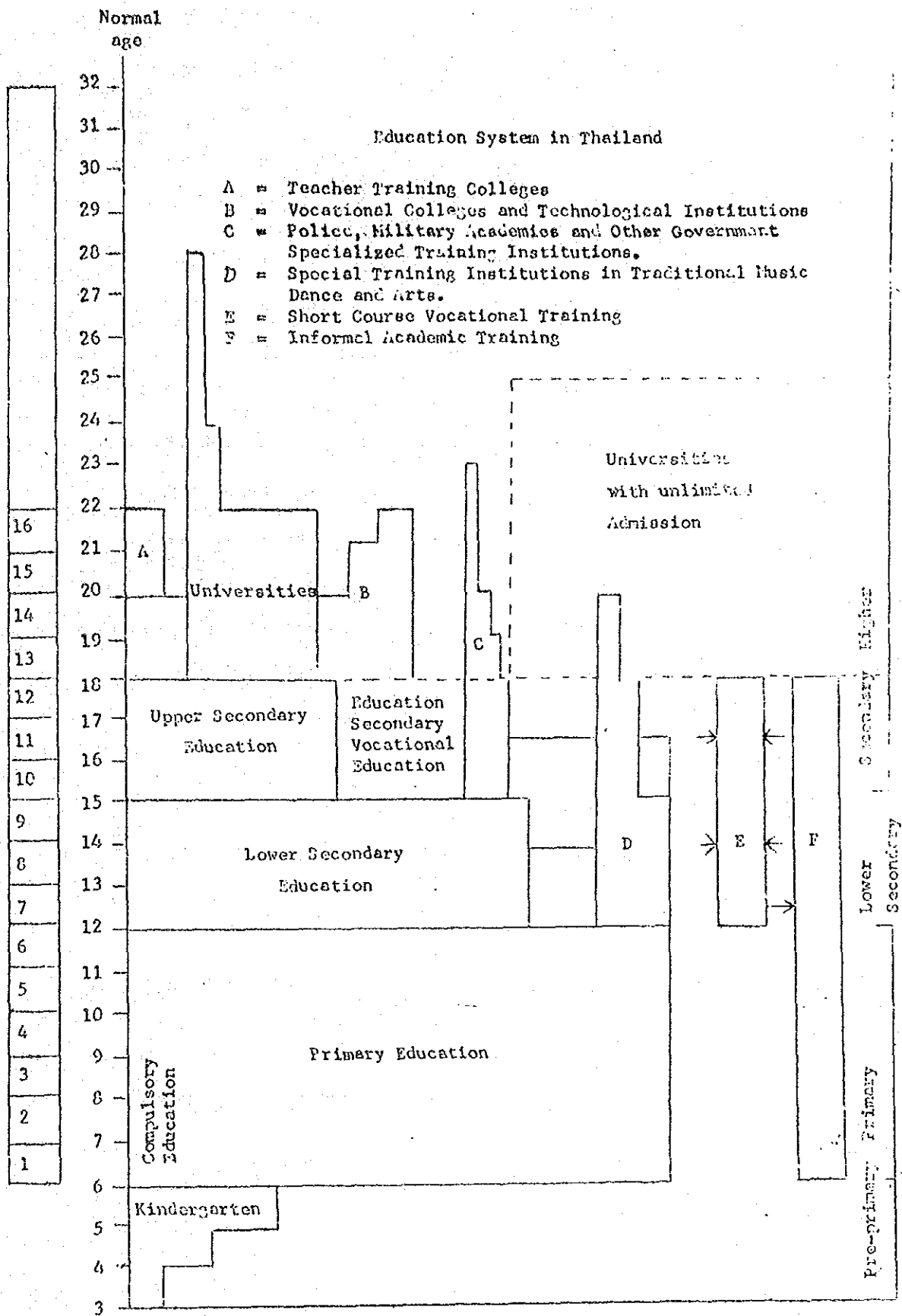
REMARKS

1. Institute of Technology and Vocational Education are under the Ministry of Education. King Mongkut's Institute of Technology is under the Office of State Universities
2. Pre-employment Training is basic skill training for out-of-school and unemployed youths.
3. Up-grading Training is a skill training for workers.
4. Trade Standard classifies skill into 3 grades. Skilled workers who apply for testing must have 1 year experience for each grade.

Chart 1. Articulation Chart of The School System Level

Pre primary	Elementary Education (Pratom)	Secondary Lower Secondary	Education Upper Secondary	Higher Below Degree	Education Degree
Mode Ages at Beginning of School Year 6 7	1-2-3-4-5-6 12	1-2-3 13 15	4-5-6 16 18	1-2-3-4 19	24
				1-2-3-4 1-2 1-2-3-4-5-6 1-2-3-4-5 1-2-3-4	Teacher Education University Vocational Education Royal Military Academy Police Office Cadet Academy Music and Dramatic Arts

Source : Office of the National Education Commission



Source : National Education Commission

(3) Differences

Regional Institute for Skill Development	Vocational School
<ol style="list-style-type: none"> 1. Short - term courses 2. Practical Training 3. Labour Market Demand 4. Flexible contents of courses 5. Training for Employment 6. Employer/Employee Participation (Tripartite) 7. Higher cost per trainee 8. Flexible wage by employers 9. Skilled workers 10. Out - of-school Youths 	<ol style="list-style-type: none"> 1. Long - term courses 2. Theoretical education 3. Demand of youths and Parents 4. Fixed academic curriculum 5. Education System 6. Government only 7. Lower Cost 8. Fixed wage by CSC 9. Technician and Engineer/ Architect 10. In school/ system

(3) Outline of each Regional Institute for Skill Development.

(3)① Name and place.

(3)①.1 Ratchaburi Institute for Skill Development

Amphur Muang, Ratchaburi Province

(3)①.2 Cholburi Institute for Skill Development

Amphur Muang, Cholburi Province

(3)①.3 Lampang Institute for Skill Development

Amphur Muang, Lampang Province

(3)①.4 Khon Kaen Institute for Skill Development

Amphur Muang, Khon Kaen Province

(3)①.5 Songkhla Institute for Skill Development

Amphur Muang, Songkhla Province

(3)①.6 Nakornsawan Institute for Skill Development

Amphur Muang, Nakornsawan Province

(3)2, (3)5 Duration and Content of Training Course

Regional Institute for Skill Development

Training Institute	Pre-Employment	Up-Grade	In-Plant	Non-Tech. & Rural Vo.Tr.
	(month)	(hour)	(month)	(hour)
Ratchaburi	3 - 10	30 - 60	2 - 4	20 - 60
Cholburi	3 - 10	30 - 60	2 - 4	30 - 60
Lampang	3 - 10	30 - 60	2 - 4	12 - 60
Khon Kaen	6	60	2	20 - 60
Songkhla	3 - 10	60	2 - 4	20 - 60
Nakornsawan	3 - 10	30 - 60	2 - 4	20 - 60

(3) • (3) , (3) (4) Number of applicants and Number of Trainees

Regional Institute for Skill Development 1985

Courses Institute	Pre-Employment		Up-Grade		In-Plant		Non-Technical		Trade-Test		Skill-contest	
	Applicant	Trainee	Applicant	Trainee	Applicant	Trainee	Applicant	Trainee	Applicant	Trainee	Applicant	Trainee
Ratchaburi	1,154	411	1,260	1,210	348	316	464	404	64	61	262	241
Cholburi	533	426	961	961	331	331	440	440	82	82	322	241
Lampang	1,977	423	870	659	397	397	283	283	54	54	517	382
Khon Kaen	2,196	558	697	350	476	241	298	262	-	-	343	330
Songkhla	985	580	476	476	420	420	559	559	75	75	407	407
Nakorn-Sawan	703	301	480	454	186	186	276	269	94	85	-	-
Total	7,548	2,699	4,744	4,110	2,158	189	2,320	2,217	369	357	1,851	1,601

3.6 Qualification for enrollment

For Pre - Employment training courses, the age limits for selection are between 16 - 25 years. Educational background depends on the trade chosen and varies from primary schooling (bricklaying, painting, plumbing, etc.) to secondary schooling (electrical, electronics, machining shop, etc.). Persons who are employed, can not meet the required basic entrance qualifications. They are encouraged to attend evening classes to upgrade their skills.

For other courses such as instructor training, training officer courses, foremen/supervisory training, etc. Selection is left to the employer.

3.7 Way of Recruitment of trainees.

Selection of trainees has been made by a Selection Committee whose secretariat keeps informative public relations with the masses about training courses. The Committee collaborates closely with various training unit concerned. in written competitive examination and interview.

3.8 Tuition fee : The trainees do not pay any tuition fee. (free of charge).

9, 10, 13, 14

3. Rate of Employment, Staff's House, Quantity of Dormitory, Number of Administrative staff and

Instructors (Permanent Employee) in 1985 Regional Institute for Skill Development

Institute	* Rate of Employment	Staff's House	Quantity of Dormitory	Civil Servant	Permanent Employment
NISD	63.0 %	-	-	166	104
Ratchaburi	37.97 %	55	120	45	43
Cholburi	21.75 %	56	120	41	47
Lampang	34.0 %	49	120	45	43
Khon Kaen	** 79.0 %	52	120	38	48
Songkhla	65.0 %	82	120	37	34
Nakorn-Sawarn	62.16 %	93	120	37	44

* Rate of employment is the rate of immediate after graduation

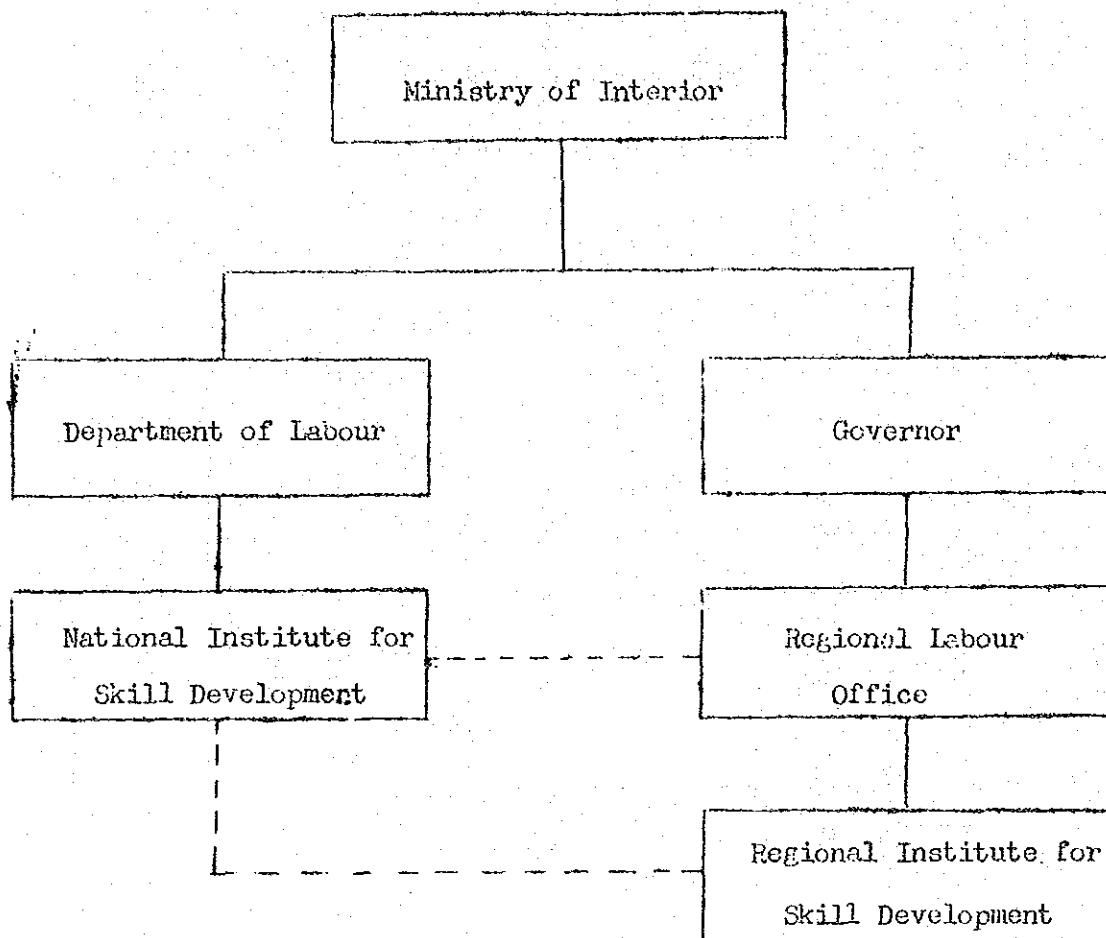
** See table No.12

(3). (12) Operational Expenses
(Break down of Budget)

1986

Institute Budget	Bangkok	Cholburi	Khon Keen	Lainang	Nakorn Sawan	Ratchaburi	Songkhla	Total
Salaries	13,984,880.-	4,433,980.-	4,016,620.-	4,080,080.-	2,355,820.-	4,002,840.-	3,099,780.-	35,974,000.-
Temp. Sal.	53,100.-	-	-	-	-	-	146,100.-	199,200.-
Remuneration Maintenance Con. Material	8,476,300.-	2,757,400.-	3,047,200.-	2,773,700.-	2,272,600.-	2,737,000.-	2,756,100.-	24,820,300.-
Utilities	1,491,600.-	557,200.-	953,300.-	490,200.-	302,100.-	592,400.-	613,200.-	5,000,000.-
Office & Training Equipment and Construction	1,389,800.-	1,833,300.-	70,100.-	924,100.-	-	-	-	4,217,300.-
Total	25,395,680.-	9,581,880.-	8,087,220.-	8,268,080.-	4,930,520.-	7,332,240.-	6,615,180.-	70,210,800.-

3. (4) Organisation Chart



----- Technical Assistance

----- Training Aids

----- Trade Standard and Testing

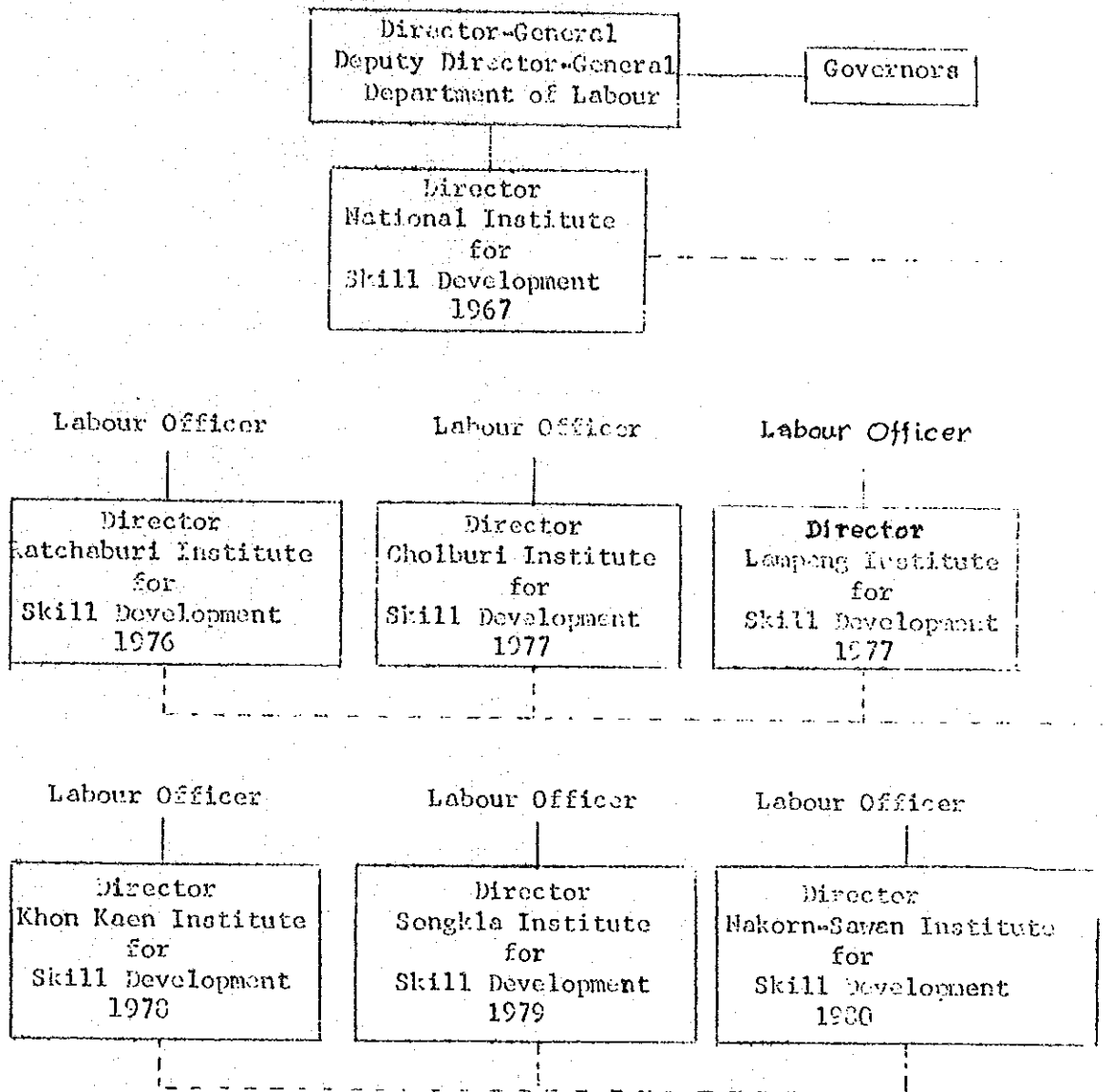
----- Skill Competition

----- Budget Preparation

----- Curriculum Development

Chart 2

Diagrammatic Scheme of Institutes for Skill Development



Thai/Japan

Thai/German

Bi-lateral Project

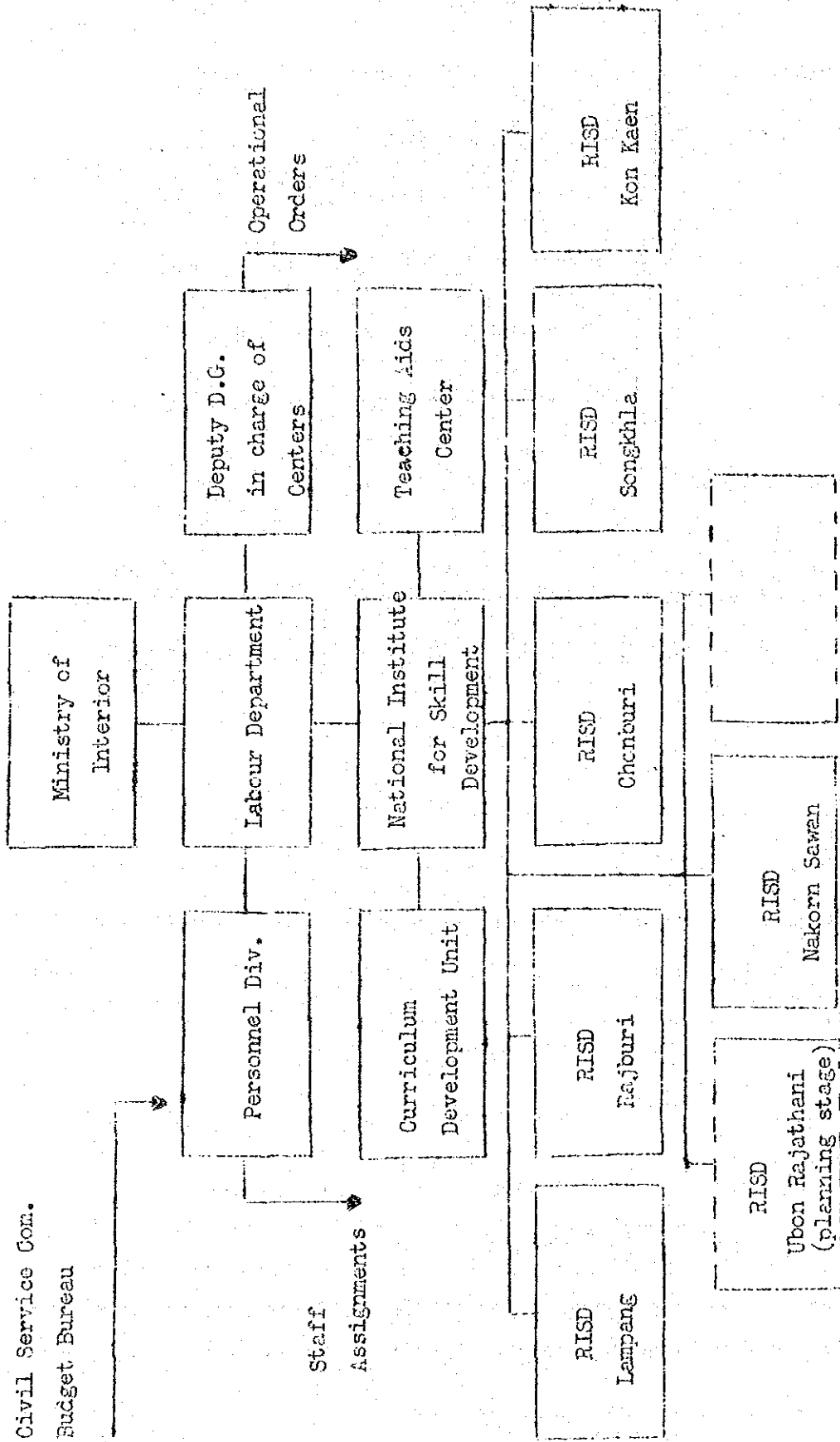
Bi-lateral Project

The Regional Institutes come under the jurisdiction of the Governor and Labour Officer of Province where they are located. Supporting services are provided by the HISD for instructor training, curriculum development, training aids and equipment supplies.

Source : HISD

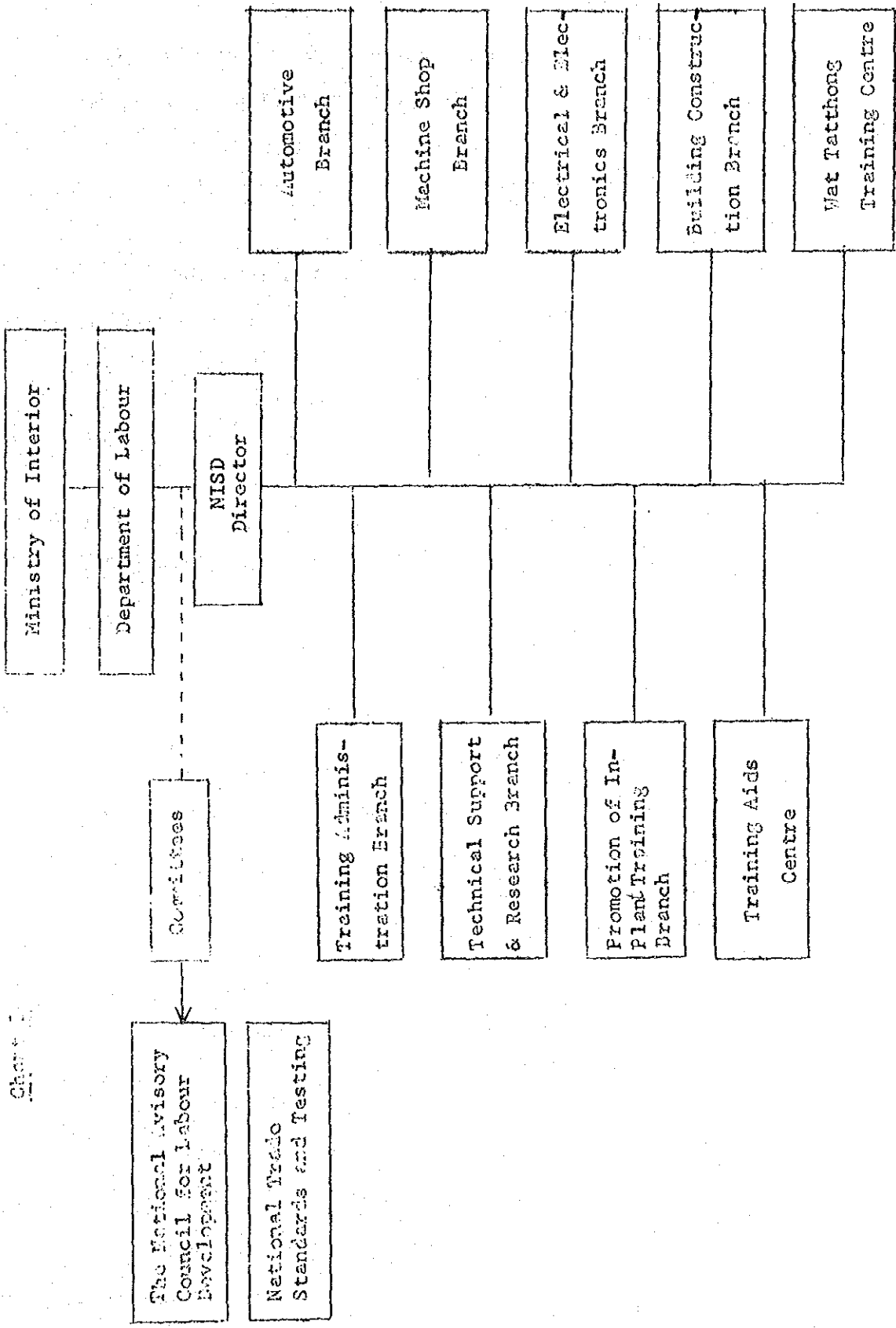
Organisation Chart : Department of Labour

Institutes for Skill Development



Organisation Chart for National Institute for Skill Development

Chart 1



Source : NISD

(4) Relationship between NISD and other Regional Institute for skill Development

1. Finance : In case the allocated budget of institute is not enough, it can be transferred from other institutes to support if it is necessary.
2. Personnel : It can be transferred in case of necessity
3. Technical Support : NISD is the center ^{of} Administration which provides all technical assistance of vocational training for Regional Institute through Seminar of Instructors.

(5) NISD

(6) Yes, in some cases it can be adapted to suit the local demand.

(7) Yes, it is as usual.

(8) No.

(9) No.

(10) There are skill testing and certification system in each institute. Trade Standard testing are prepared for candidates. The candidates will get the certificates issued by the Department of Labour. At present there are ¹² Trades Standards :-

- | | |
|--|--------------------------------|
| 1. Electric Arc welding | 3. Radio & Television Mechanic |
| 2. Machinist (Lathe Operator) | 3. Carpenter |
| 3. Electrician | 10. Plumber & Sanitary workers |
| 4. Gas Welder | 11. Brick-layer |
| 5. Auto Mechanic | 12. Plasterer |
| 6. Fitter Machinist | |
| 7. Refrigeration & Air conditioning Mechanic | |

The annual skill competition are undertaken in National level

4. Outline of the Project

(1) Objective and Target of the Project

- 1 To develop efficient and effective skill training programmes for the out-of-school youths to enable them to enter into the labour market.
- 2 To upgrade the skills of those persons already employed in the labour market thus improving productivity and quality of production.
- 3 To encourage industrial and other business establishments to participate more in skill development.
- 4 To develop relevant skill training courses as required by localities and the labour market.
- 5 To organize Trade Testing and Certification in accordance with National Trade Standards.
- 6 To provide the basic training needed, to foster rural development.
- 7 To develop test and define the curricula and teaching aids relevant to the potential employment market of the region and the needs of the rural areas, paying particular attention to the encouragement of self-employment.
- 8 To ~~make~~ ^{arrange} the training courses for enterprises, foremen, supervisors, staff training officers.
- 9 To ~~make~~ ^{arrange} the training courses up to the rural development project of the Government.

10 The Project will give particular attention and training of young women in the following skills :

- Waitresses ;
- Receptionists
- Maids ; etc.

11. Agromechanics and agroindustries

The region is still eminently agricultural.

The new institute, there will have as its main objective to cater the demands of the economic sector; particularly in the development of small-scale agroindustries. Among the rural populations of agromechanics and in providing them with skills will foster rural development. This orientation sets it aside from the other Regional Institutes and it is believed that it could serve as a pilot for other similar institutions to be established in other rural area of Thailand and perhaps, to other regions of Asia.

12, UBISD Project also concentrate rural Training Programmes on the rural poor and therefore all such programmes should have a substantial element of social justice and equity built into them. In fact the success of rural training will depend upon the extent to which the productivity of the rural poor is increased without any dependence on costly inputs.

Rural Training programmes designed to help the majority of rural people acquire skills (Vocational and managerial) which can be used immediately to increase productivity and improve living conditions.

In most present day societies, where wages scales and social prestige to qualifications obtained in education and training training programmes should aim at achieving full equality of opportunity for rural and urban population. It is recognised, however, that the rural training the emphasis should be on relating the skills, knowledge and attitudes to "know - how" requirement of rural economic activities and to the learning characteristics of the different target population .

The Institute for Skill Development at Ubon Ratchathani is proposed to serve the need of Lower North Eastern Thailand. It will be planned to contribute to the training requirement of the unemployed untrained, semi-skilled and skill manpower, and for stimulating the development of the local economic.

4(2) Contents of the training programmes to suit the local requirement. Programmes are categorized as follows :

(2).I. PRE-EMPLOYMENT TRAINING

Basic skill training is provided for the out-of-school youth at the age 13 -- 25, who are unemployed to acquire the employable skill. Pre-employment courses accept the trainees with only four years primary schooling up to nine years education (Junior high) depending on courses requirement. Consideration is given to the under privilege the poor people. All courses are provided on the broad base basis and in short duration ranging from 3 -- 11 months followed by 2 - 4 months training on the job training in industry. Some of the training courses are divided into several modular units which can be interchanged consequently to cover the whole course. This arrangement has been made for two reasons. First, to enable the poor trainees, who cannot cover the whole course, to dropout upon completion of each employable unit. Secondly, more trainees can be accepted and the equipments are fully utilized.

In consequence of the philosophy to train for employment, there are close cooperation between the employers and the institutes to ensure that the training is relevant to employment needs. The placement of trainees for on the job training is a part of the cooperation. This is due to the awareness that training in the institutes cannot provide the trainees with specific knowledge and skill particularly required in various industries. The pre-employment training of the institutes is, therefore, not regarded as a fully institutional based training but a combination of institutional and industry based training scheme. The cooperation between the institutes and employers in the training programmes have been developed voluntarily on the basis of mutual interest.

Since most of the trainees are paid with allowances by the industries while they undergo in on the job-training and are recruited for employment after the in-plant training period, pre-employment training of the institutes has taken a place of the apprenticeship training system which does not exist in the country.

(2).2. UP-GRADING TRAINING

Up to present, skilled workers have been developed by training on the job: watching other at work, trial and error process. Most of them has never been to any training institutes or trained in a systematic manner. This traditional method has some limitation in the further skill development. There is a need to upgrade, update and retrain the existing skilled workers to keep up with the continual technological changes. The institutes conduct evening courses in upgrading knowledge and skills for workers. This would in turn, enable them for their vertical and horizontal mobility. As mentioned earlier, the pre-employment trainees who have dropped out of work upon the completion of some units in pre-employment training courses can also attend while working. Workers can choose courses appropriate to their trades. There are at least 30 upgrading courses of approximately 60 hours to suit their specific requirements. Some of the courses are more theoretical oriented, due to the fact that the workers who have been practicing on their job would need additional theoretical subject. The upgrading courses have been very popular among both workers who attend on their own initiatives and the employers who send their employees for training in some particular areas required for their industries. Most of the trainees has gained higher wages after their graduation. Some of the workers attend a course in cost estimation which is provided from time to time to enable them to become self-employed.

(2). 3. Non-Technical Training

Although training at the institutes is more con- to technical courses which cater mostly male trainees, non technical training programmes have not been neglected. The institute conduct non-technical training courses such as entrepreneurship, secretary, receptionist, salesmanship, waiters and waitress, janitor. Experienced staff from hotels, business enterprises and professional associations and brought in to join the team of instructors. All courses are in short duration, upgrading nature and are provided both in the day and evening. The courses seem to attract more female than male trainees. New arrangement will be evolved and new occupations will be gradually identified to provide a more balance of these programmes.

(2). 4. Foreman Training

There is an obvious need for training the foreman who are mainly promoted from the rank and file to ensure that they are able to cope with the new responsibilities. The institute's foreman training courses are directed entirely to the need of industry. Subjects mainly include training in leadership, instructional and communication techniques and safety. In the case of big industries, the courses are organised specially for and in the enterprises. Small industries are catered in the training courses provided at the institutes where they can send 1 or 2 persons to attend. This programmes has been well appreciated by the enterprises as to promote good industrial relations and production for the foreman, the chance for vertical mobility is provided. The indirect impact of the courses is the close contact between the institutes and the management of industry which has led to the good cooperation in the other training aspects.

(2) 5. Mobile Training

Mobile training course will provide upgrading training or special training to the country up to the rural development programme of the Government such as small engine repairing, motorcycle repair etc.

(2) 6. Trade Standards Testing

National Trade Standards Testing will be extended to the Ubon Ratchithani Institute. The National Trade Standards are divided into three grades, Grade 1 (the highest), Grade 2 and Grade 3. The Trade Standards Testing will be lead to a higher level of skill standardization and preventive of national skill workers shortage.

NUMBER OF TRAINEES PLANNED

TRADE	DURATION MONTHS	1988	1989	1990	1991	1992	TOTAL
<u>PRE-EMPLOYMENT TRAINING</u>							
FITTING	10	15	15	15	15	15	75
MACHINIST	10	15	15	15	15	15	75
LATHE OPERATING	10	15	15	15	15	15	75
WELDING & SHEET METAL	6	15	30	30	30	30	135
AUTOMOTIVE	6	15	30	30	30	30	135
AGROMECHANIC	6	15	30	30	30	30	135
AUTO-BODY REPAIR	10	15	15	15	15	15	75
ELECTRICAL	6	15	30	30	30	30	135
ELECTRONICS	10	15	15	15	15	15	75
REFRIGERATION & AIR CONDITION	6	15	30	30	30	30	135
DRAFTING	11	15	15	15	15	15	75
CARPENTRY	6	15	30	30	30	30	135
CABINET MAKING	6	15	30	30	30	30	135
MASONRY	6	15	30	30	30	30	135
PLUMBING	6	15	30	30	30	30	135
<u>OFF-GRADING TRAINING</u>	-	100	200	200	250	250	1,000
<u>NON-TECHNICAL TRAINING</u>	-	50	100	100	150	150	550
<u>TRADE TESTING</u>	-	-	50	60	60	60	230
TOTAL	-	375	710	720	820	820	3,445

4 (3) Priority of the training courses and fields are as follow :-

1. Pre-employment Training Courses:

3.1.1. Welding and lathe operating

3.1.2. Construction

3.1.3. Auto-Mechanics Repairs

3.1.4. Carpentry furniture

3.1.5. Mechanics Repair

3.1.6. Electrical installation

3.1.7. Painting

2. Non-Technical Training Course

3.2.1. House Maid

3.2.2. Waiter & Waitress (Hotel Service)

3.2.3. Receptionist

3. Rural Vocational Training and Agro-mechanic

4 (4) The rate of employment for the graduates of the new Regional Institute for Skill Development in Ubon Ratchhani about 70 %

There are 11,000 establishments in lower northeastern (from survey in 1964). There are 1,532 establishments in Ubon Ratchhani Province. Especially there are 567 manufacturing establishments which is able to absorb trainees to be trained in plant and to be employed after graduation. In the cooperation with the Provincial Labour Offices who are responsible for employment placement in the local area for graduated.

The rest of 30 % of the graduates they may find job by themselves, or may choose to migrate to the city or overseas. Some may have their own job, and family account and some may continue further training.

The employment rate of 83% of KISD is the rate of immediate employment after graduation. 3 - 6 months later the employment rate will gradually increase up to 80 - 90%. However, since the graduated from KISD have sufficient skill, they are able to work by themselves which called self-employment in some way.

(5) KISD can not provide training facilities to the people in Lower Northeastern Region at a whole by many reasons.

Area : Northeastern; 17 provinces

Number of population (1984) : 17,632,044

Number of youths (15 - 25 years) 1985 : 4,450,770

Number of out-of-school youths (1980) : 3,022,711

Number of Industries (1984) : 21,411

Number of Employees (1984) : 122,213

All training courses of KISD = 1,742 persons /year

Pre-employment training of KISD = 502 persons/year

Up-grading training of KISD = 217 persons/year

Others = 429 persons/year

From the above figures it shows that the demand of training needs is higher than the KISD full capacity, so it necessary to increase another institute to serve the out-of-school youths in the remote areas. They have difficulties economic problem in travelling to train at KISD.

The Ukon Ratchthani Institute for Skill Development is mainly aimed at serving planned to serve the out-of-school ^{youths} of the Lower Northeastern part of 8 provinces where out-of-school youths are 1,557,323 persons, number of employees is 21,024. (See annex Table 1, 2, 3, 4, 5 and 6.10) (appendix 1)

(6) The necessity and background to establish the new Regional Institute for Skill Development.

There are 17 provinces in the Northeastern of Thailand with the total population of 7,638,044 in 1984 which is more than one third of the total population of the whole country. Khon Kaen Institute for Skill Development (KISD) is situated in the upper part of the Northeast of Thailand cannot serve the demand of school leavers and workers in this region, especially those who live far away more than 100 km. Therefore it is necessary to divide the Northeastern part of Thailand into two parts : upper and lower Northeast for administrative and economic point of view. KISD will be responsible for upper northeast while UEISD will be responsible for lower northeast.

Ubon Ratchthani province is the central of administration in the lower northeastern of Thailand. There are regional offices of local administration, finance, police court of justice and education. Transportation and communication for Ubon Patchthani are sufficiently provided by air, by rail and high-way. There are good roads from Ubon Patchthani to other 7 provinces that can be used in all season. The population of Ubon Patchthani in 1984 was 1,705,811 which is the second populated province in this region. Some figures and information will be shown as follow :

shown

1. Number of population in Northeastern Region = 17,638,044
2. " " in Ubon Patchthani
and surrounding 7 provinces = 9,938,790
3. Number of establishment in Ubon Patchthani
and surrounding 7 provinces = 11,002
4. Number of employees in Ubon Patchthani and
surrounding 7 provinces = 61,024

5. Number of out - of - school youths(15 - 25 years) = 3,022,714
(1980)

These figures show the basic facts :

1. Large population base calling for large training facilities
2. Increasing of service business offer more employment facilities for women
3. Requesting from many other agencies for training assistance
4. Implementation of government policy for manpower and labour development
5. Skill training for rural areas are used
6. Promoting of local employment opportunity for poor persons to reduce the rate of migration
7. Supplying of skilled labour demand of local industries
8. Developing of the quality of human resource

(See Annex table No. 1, 3, 4, 5)

5. Budget and Executive System

(1) Flow Chart

Particular	1936												1937												1938				
	Fiscal Year 1936					Fiscal Year 1937							Fiscal Year 1938					Fiscal Year 1938											
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar					
<p style="text-align: center;"><u>ROAD</u></p> <ol style="list-style-type: none"> 1. Request a special budget for excavation work 2. Excavation work 3. Request for Utilities eg. : Electricity, Water Supply and Telephone Installation 4. Construction work of fence & internal roads 5. Request for Personnel recruitment to the Civil Servant Commission and the Bureau of the Budget 6. Recruitment of the officers for the fellowships and preparation for the machines & equipment installation with the Japanese experts 7. Full placement of personnel 8. Project Operation 																													

(2) The current budgetary condition in Thailand is not so good as the world economic situation, Almost all construction cost of the new project are not permitted

Annual Budget in 1986

million:Baht

National Budget	218,000
Budget of Labour Department	242.65
Budget of 7 Institutes	70.22
NISD	25.40
RISD	7.33
CISD	9.58
LISD	8.27
KISD	8.00
SISD	6.62
NISID	4.93

(3.) That government budget preparation is based on zero growth rate so any construction project is not allowed.

(4),(5) Number and Qualification of Administrative and Technical Staff

Position	PC.	No.	Qualification
* 1. Director	7	1	- Senior Officer
* 2. Administrative Staff	6	2	- Senior Officer
*	5	1	- 5 years experience in Vocational Training Officer
	4	-	- 2 years experience in Vocational Training Officer
	3	7	- Bachelor Degree
	2	3	- Diploma
	1	3	- Vocational Certificate
Total		22	
3. Technical Staff			
* 2.1. Civil Servant	3	4	- Senior Officer
			- Technical Bachelor or equivalent or Technical Diploma and 10 years experience
	3	11	- Technical Bachelor
	2	9	- Technical Diploma
	1	4	- Technical Certificate

Position	PC	No.	Qualification
3.2. Permanent Employee	--	13	-- Primary Education and 10 years experience in industry
*		5	-- Technical Certificate and 3 years experience in industry
*		5	-- Technical Diploma and 3 years experience in industry
Total	--	41	
4. General Worker			
4.1. Guard	--	7	-- Primary Education
4.2. Driver	--	3	-- Primary Education With Driving licence
4.3. Janitor	--	10	-- Man, Woman minimum age of 13
4.4. Cardener	--	2	-- Man, minimum age of 13
Total		31	
Grand Total		72	

Remark : PC. : Position Classification

: * Counterpart

(2)

(6.) Budget of Ubon Ratchithani (in Million Baht)				
Types of Expenditure	1986	1987	1988	1989
1. Salary & Wages	-	0.81	2.51	3.65
2. Temporary Salary	-	0.04	0.04	0.04
3. Remuneration & Consumable Material	-	0.08	1.88	2.08
4. Office & Training Equipment	-	0.43	0.56	0.87
5. Land & Construction	3.72	5.30	4.00	3.07
Total	0.72	6.72	3.00	3.33

6. Others :

(1) Refer item 4 (5)

6.(2) The other foreign assistance scheme

Similar to the UBISD Project

Description	Thai	German
1. Land	31.62 ACRES	
2. Construction (Building & Workshop)	62,968,000 baht	
3. Expert, Running Cost and Administration Cost		21,333,306 baht 5 persons (165 man/month)
4. Equipment		36,587,917 baht
5. Counterpart Scholarship		5,483,000 baht (26 persons)
Total	62,968,000 baht	63,404,223 baht

Description	Thai	UNDP/ILO
1. Land	31.62 ACRES	
2. Construction (Building & Workshop)	99,000,000 baht	
3. Expert, Travel and Administration Cost		7,241,586 baht 5 persons (40.9 man/month)
4. Equipment		15,400,000 baht
5. Counterpart Scholarship		880,000 baht
6. Miscellaneous		283,360 baht
Total	99,000,000 baht	23,804,946 baht

6 (3) Present situation of the Project Site.

Area : 26.00 Acres.

Site : 8.5 km. from the central of Ubon Ratchathani Province.

The Thai budget contribution will be provided for infrastructure and Utility.

- Infrastructure - Water supply
- Electricity
- Telephone
- Roads

Description of the budget is shown in 5 (6)

6 (4) Laws and regulations relating to the vocational training

The National Trade Standard have been approved by the Cabinet for the following trades

- Electric Arc Welder
- Machinist (Lathe Operator)
- Electrician (Building)
- Gas Welder
- Automobile Mechanic
- Mechanical Fitter
- Refrigeration & Air Conditioning Mechanic
- Radio & Television Mechanic
- Carpenter (Construction)
- Plumber and Sanitary
- Brick - Layer
- Plasterer

The Apprenticeship regulation is under consideration of the Cabinet.

Table List

- Table No. 1 Total Number of Population by Sex and Region in Thailand.
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Key Occupation During The Fifth Period
- Appendix 3 Employed Persons 11 Years and Over by Level of Education, The
Whole Kingdom, 1971 - 1981 (July - September)
- Appendix 5 National and Regional Institute for Skill Development ;
Number of Trainees, Graduated and Expectation

Table No. 1 Total Number of Population by Sex and Region in Thailand :
1984

REGION	TOTAL POPULATION	MALE	FEMALE
Bangkok Metropolitan	5,174,682	2,628,128	2,546,554
Central	11,189,297	5,618,423	5,570,874
North	10,281,206	5,181,617	4,999,589
South	6,299,876	3,163,076	3,136,800
North Eastern	17,638,044	8,857,800	8,780,244
8 Provinces in Lower North Eastern	9,038,790	4,540,234	4,498,556
Whole Kingdom	50,583,105	25,449,044	25,134,061

TABLE NO 2

The Estimation of Population 15 - 25 Years of Age in

1985 - 1995 by Region

in thousands

REGION	1985	1990	1995
BANGKOK	1,263.5	1,453	1,760
CENTRAL	2,552.7	2,654	2,597
NORTHEASTERN	4,450.7	4,936	4,917
NORTH	2,594.3	2,620	2,546
SOUTH	1,443.0	1,551	1,596
TOTAL	12,304.2	13,214	13,416

Source: Education Sector Survey: 1983 office of the National
Education Commission Office of the Prime Minister, Thailand

Table No. 2 Population 15 - 24 Years of age Out-of-School in Northeastern

Region: 1989

AREA	SEX	MALE	FEMALE	TOTAL
Ubon Ratchathani and Surrounding Provinces		783,329	803,994	1,587,323
Northeastern Region		1,478,454	1,544,260	3,022,714

Table No. 4 Employees by Industry and Sex in Lower North-eastern District : 1954

	Upper Batchashvili		Pchodiyeburi		Makoni Batchashvili		Surin		
	Establishment	Employees	Establishment	Employees	Establishment	Employees	Establishment	Employees	
									Male
Total	1,832	11,364	1,140	6,844	3,376	17,818	1,055	7,812	
Industries									
		Male	Female	Male	Female	Male	Female	Male	Female
Mining and Quarrying	2	22	5	32	4	-	-	-	-
Manufacturing	337	1,791	757	736	335	3,939	162	1,253	332
Electricity Gas and Water	27	343	133	543	73	42	7	151	23
Construction	20	693	86	174	33	143	3	125	42
Wholesale, Retail Trade, Restaurants, Hotels	744	1,360	1,440	1,004	313	3,549	2,270	1,417	1,349
Transport, Storage, Communication	50	248	137	373	60	1,017	70	539	115
Financing, Insurance, Real-estate, Business Service	53	319	231	504	147	377	433	344	36
Community, Social, Personal Service	364	1,532	1,077	893	201	2,321	623	1,304	407

	Buirum		Srisaket		Yasothon		Mukdahan		Total			
	Establi shment	Empoloyees		Establi shment	Employees		Establi shment	Employees		Establi shment	Employees	
		Male	Female		Male	Female		Male	Female		Male	Female
Total	1,732	8,726	978	3,943	533	3,433	456	2,169	11,002	61,024		
Industries		Male 5,971	Female 2,755	Male 2,705	Female 1,238	Male 2,482	Female 951	Male 1,565	Female 604	Male 40,341	Female 20,68	
Mining and Quarrying	-	-	-	33	3	-	-	-	-	-	4	12
Manufacturing	353	2,124	132	623	232	664	199	574	94	1,955	10,834	5,966
Electricity Gas and												
Water	11	216	6	96	17	131	21	34	10	83	1,612	315
Construction	10	234	8	206	31	261	72	118	40	110	1,667	4-364
Wholesale, Retail Trade												
Restaurants, Hotels	976	1,857	620	874	703	687	465	396	379	5,660	11,970	9,258
Transport, Storage,												
Communication	48	377	18	138	8	104	14	116	9	371	3,905	51
Financing, Insurance, Realestate, Business Service	36	224	26	343	108	280	68	120	84	339	3,031	1,333
Community, Social, Personal Services	334	939	167	392	136	355	122	157	38	2,480	7,228	2,916

TABLE NO 5 Number of Out-of-School Youths by Provinces and Sex for Lower Northeastern Region: 1984

PROVINCES	NUMBER OF POPULATION	OUT OF SCHOOL	
		MALE	FEMALE
UBON RATCHATHANI	1,705,811	135,926	137,924
SURIN	1,140,533	86,427	90,111
BURIRUM	1,249,974	96,446	99,975
SRISAKET	1,169,921	97,617	94,361
NAKHON RATCHASIMA	2,113,498	193,408	199,734
MUKDAHAN	259,849	64,729	70,022
YASOTHON	480,936	34,482	26,988
CHAIYAPHUM	918,268	74,294	84,879
TOTAL	9,038,790	783,329	803,994
		: Total 1,587,323	

Table No. 6 Employed Persons by Industry and Sex for North - Eastern Region:
(JAN - MAR, 1983)

INDUSTRY	TOTAL	MALE	FEMALE
TOTAL	6,151.2	3,864.4	2,286.8
1. Agriculture, Forestry, Hunting and Fishing	4,124.7	2,614.1	1,510.6
2. Mining and Quarrying	27.9	16.5	11.4
3. Manufacturing	560.1	330.1	230.0
4. Co nstruction, Repair and Demolition	181.6	166.7	14.9
5. Electricity, Gas, Water and Sanitary Services	75.6	38.5	37.1
6. Commerce	455.3	221.1	234.2
7. Transport, Storage and Communication	237.9	176.1	61.8
8. Services	488.1	301.3	186.8
9. Activities not Adequately Described	-	-	-

Table No. 7 Unemployed by Region in Thailand : 1978 - 1983

Number of Unemployed	1978	1979	1980	1981	1982	1983
Whole Kingdom	156,500	190,200	204,400	213,000	316,600	256,100
Bangkok Metropolitan	57,900	73,400	83,500	76,600	109,500	74,500
Central	44,800	43,100	50,200	59,300	72,700	86,400
North	21,300	21,300	21,400	22,700	35,300	38,700
North - Eastern	18,000	36,100	29,200	33,600	50,400	24,600
South	14,500	16,300	20,100	20,800	48,700	31,900

Table No. 8 DEMAND OF MANPOWER BY OCCUPATIONS OF NORTHEASTERN REGION IN 1985

REGION	TOTAL	PROFESSIONAL, TECHNICAL AND RELATED WORKERS	ADMINISTRATIVE, EXECUTIVE AND GENERAL WORKERS	ADMINISTRATIVE, CLERICAL AND RELATED WORKERS	SALES WORKERS	SERVICE WORKERS	AGRICULTURAL, ANIMAL HUSBANDRY AND FOREST WORKERS, FISHERMEN AND HUNTERS	PRODUCTION AND RELATED WORKERS, TRANSPORT EQUIPMENT OPERATORS AND LABOURERS
LOWER NORTHEASTERN	1,296	24	-	118	223	113	95	538
NORTHEASTERN REGION	1,613	54	-	164	324	116	110	1,045

TABLE NO 9 Trainees and Graduated for KISD. 1979 - 1984

COURSES	1979 - 1984		1984	
	TRAINEES	GRADUATED	TRAINEES	GRADUATED
Pre-Employment Training	2,606	2,160 (82.89 %)	502	429 (85.46 %)
In-Plant Training	2,160	1,905 (88.19 %)	429	403 (93.93 %)
Up-Grading Training	1,676	1,250 (74.58 %)	602	478 (79.40 %)
Non-Technical Training	675	608 (90.07 %)	215	184 (85.58 %)
Trade Testing and Certification	20	7 (35.00 %)	-	-
Total	7,137	5,930	1,748	1,494

T. No. 10 JOB VACANCIES AND PLACEMENT IN LOWER WOLFE - EASTERN REGION : FISCAL YEAR 1985

OCCUPATION	VACANCIES	PLACEMENTS	UNFILL
MECHANIC REPAIRMAN	49	38	11
AUTO BODY REPAIRMAN	44	33	11
AUTO MECHANIC REPAIRMAN	154	136	21
ELECTICIAN	45	36	9
RADIO AND TELEVISION REPAIRMAN	12	7	5
AIR CONDITIONER REPAIRMAN	15	9	6
WELDER	113	64	49
LATHE OPERATOR	40	31	9
MOTOR CYCLE REPAIRMAN	11	6	5
CARPENTER AND FURNITURE MAKER	31	13	18
CONSTRUCTION WORKER	118	94	24
PAINTER	15	7	8
AUTO SERVICE	14	13	1
FARM WORKER	3,229	3,008	221
GENERAL FOREMAN	6	6	
RECEPTIONIST	40	34	6
MAID, NURSEMAID	459	352	107
WAITER, HOTEL SERVICE	307	205	102
DRIVER	279	217	62
OTHER WORKER	1,283	1,166	117
TOTAL	6,267	5,475	792

SOURCE : EMPLOYMENT SERVICE DIVISION

T No. 11 Number of the Applicants and Trainees for

Pre - employment and Up - grading Training (NISD) 1982 - 1985

Courses Fiscal year	Pre - Employment		Up - Grading	
	Applicants	Trainees	Applicants	Trainees
1982	2,599	1,035	3,026	2,120
1983	2,642	1,071	4,059	2,663
1984	2,601	1,043	4,412	3,049
1985	2,963	1,051	4,433	2,797
Total	10,805	4,200	15,930	10,629

Table No. 12 Employment by trade of Pre-Employment Trainee KISD

Jan - Sept. 1985 course

Descriptions	Total	Automobile	Mechine Shop	Electrical Electronics	Construction	Remark
No. of trainee	270	69	101	69	31	
Graduate	214	55	82	56	21	
Get job in the plant that they have been trained (in - plant training)	43	14	10	15	4	- Follow up immediately
Return to work in the plant that sent them to be trained	17	4	9	2	2	after graduate - Follow up after graduate 3 months
Trainees get jobs by themselves	110	28	45	27	10	- Follow up after graduate 6 months
Percentage of Employment	79.44	83.63	78.04	78.57	76.19	

Table No 13 Number of Pre - Employment Trainees

KISD

(Jan. 1986)

No	Provinces	No. of Trainees
I	Khon Kaen	131
2	Chaiyaphum	12
3	Nakorn Ratchasima	11
4	Buriram	
5	Surin	8
6	Srisaket	4
7	Ubon Ratchathani	9
8	Mukdaham	3
9	Nakorn Panom	5
10	Nong Khai	11
11	Udon Thani	13
12	Sakon Nakorn	9
13	Maha Sarakarm	14
14	Roi - et	13
15	Kalasin	8
16	Loei	8
17	Yasothon	6
	TOTAL	270

APPENDIX 1

Table No.A-I Projection of Additional Manpower Requirements and Supplies
in Key Occupation during the Fifth Period (1982 - 1986)

Fields of Study	Additional Requirement	Additional Supplies	Difference + Surplus - Shrtage
Medicine	3,600	3,166	- 434
Pharmacy	1,320	1,643	+ 323
Dentistry	725	1,045	+ 320
Agriculture (Bach.)	6,260	9,382	+ 3,122
Education (Upper-Bach.)	45,135	76,824	+ 31,689
Teacher Training (Lower-Bach.)	74,307	78,598	+ 4,291
Engineering	9,454	10,635	+ 1,181
Science	6,207	8,523	+ 2,316
Vocational Education	334,870	584,310	+ 249,440
<u>Certificate</u> of Vocational Education	258,720	451,510	+ 192,790
Agriculture	5,050	21,300	+ 16,250
Industry	122,900	141,040	+ 18,140
Commerce	100,700	253,700	+ 153,000
Home Economics	30,070	35,470	+ 5,400
<u>Diploma</u> of Vocational Education	76,150	132,800	+ 56,650
Agriculture	9,830	12,160	+ 2,330
Industry	37,820	58,280	+ 20,460
Commerce	20,690	43,570	+ 22,880
Home Economics	7,810	18,790	+ 10,980

Source : Sub-Committee on Manpower Assessment

(NESDB)

APPENDIX 3

Table 10. A-3 Employed Persons 11 Years and Over by Level of Education, The Whole Kingdom, 1971-1981 (July-Sept)
(in thousands)

Level of Education	2514 1971	2515 1972	2516 1973	2517 1974	2518 1975	2519 1976	2520 1977	2521 1978	2522 1979	2523 1980	2524 1981
Less than Primary	13,419	12,748	13,356	13,358	14,365	14,752	15,842	17,018	16,426	17,548	18,989
Upper Elementary				611	613	549	728	886	887	965	1,111
Lower Secondary	552	583	654	776	604	567	708	802	793	854	943
Upper Secondary				81	76	70	96	122	132	169	205
Vocational	58	95	124	132	119	126	219	226	267	287	342
Teacher Training	105	153	147	216	205	185	240	280	313	346	411
Technical Vocational	18	20	24	26	28	28	42	52	75	80	90
Academic University	63	57	71	83	73	79	116	129	156	166	208
Others	2,403	2,473	2,665	1,856	2,098	2,054	2,228	2,153	2,131	2,048	2,015
Total	16,618	15,129	17,043	17,159	18,410	18,410	20,219	21,180	21,180	22,463	24,314

Source: National Statistical Office

APPENDIX 5

Table No. A-5 (1) National and Regional Institute for Skill Development-Number of Trainee, Graduated and Expectation

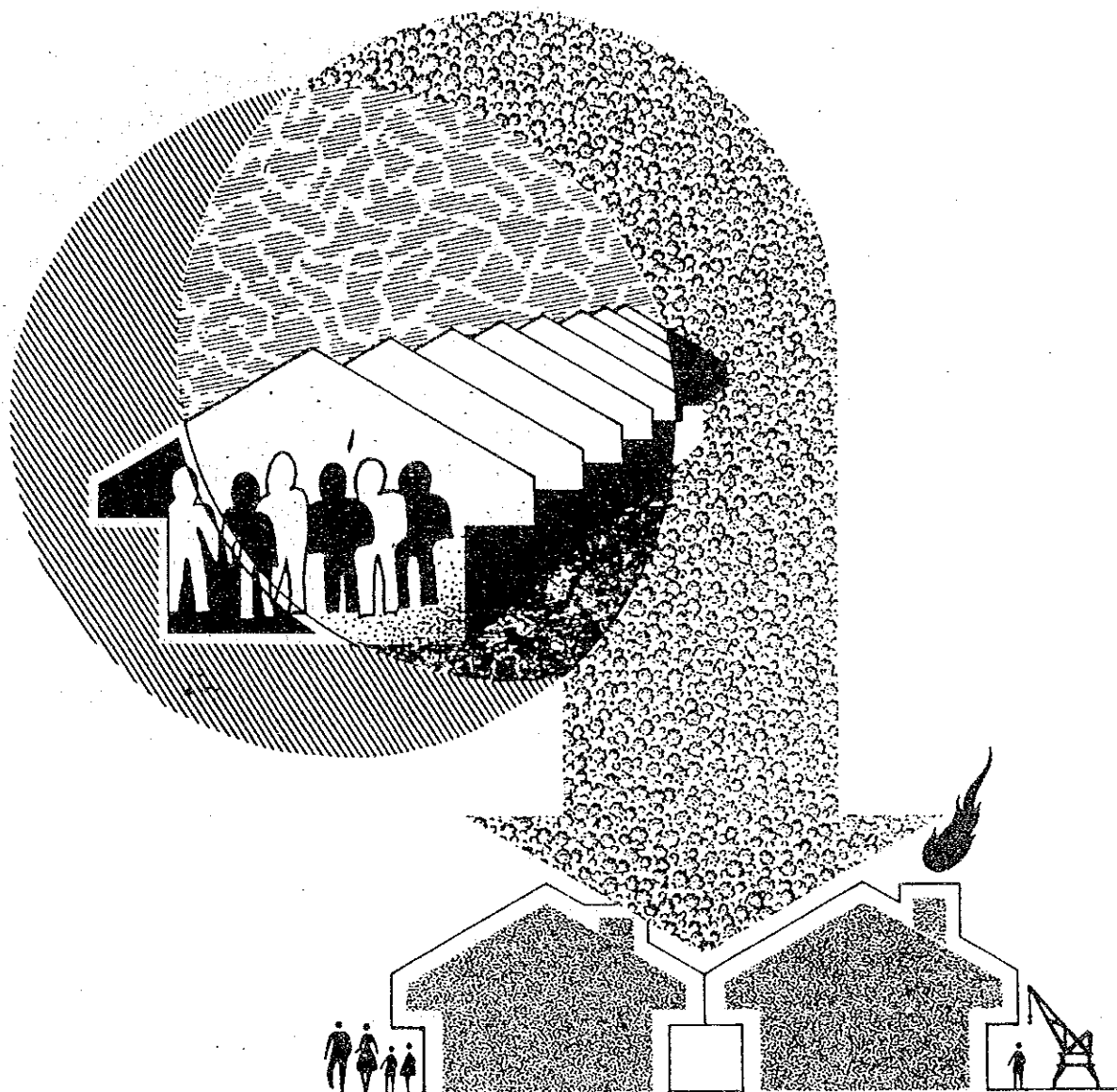
Training Programme	Total	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
I. Plan of Training											
- Pre-Employment Training	94,845	5,515	6,590	7,290	8,090	8,615	10,450	11,365	11,915	12,355	12,660
- Up-Grading Training	28,069	1,495	1,806	2,030	2,286	2,437	3,190	3,455	3,645	3,825	3,900
- In-Plant Training	34,745	2,140	2,625	2,905	3,225	3,440	3,700	4,000	4,150	4,250	4,310
- Training Promotion	17,306	790	1,044	1,240	1,464	1,598	1,860	2,110	2,270	2,380	2,550
- Special Training	6,725	640	640	640	640	665	700	700	700	700	700
	8,000	450	475	475	475	475	1,000	1,100	1,150	1,200	1,200
II. Number of Trainee											
- Pre-Employment Training	90,091	6,813	8,713	9,791	9,951	11,695	12,820	14,709	15,599		
- Up-Grading Training	23,223	1,726	1,948	2,630	2,831	3,130	3,470	3,609	3,879		
- In-Plant Training	31,813	2,514	3,135	3,563	2,906	4,049	4,195	5,534	5,917		
- Training Promotion	13,444	668	909	1,268	1,770	1,777	2,226	2,366	2,460		
- Special Training	5,999	689	1,265	827	735	807	781	395	-		
	15,612	1,216	1,456	1,503	1,709	1,932	2,148	2,305	3,343		
III. Number of Graduates											
- Pre-Employment Training	74,679	5,132	7,324	7,756	8,341	9,525	11,168	12,156	13,277		
- Up-Grading Training	18,525	1,146	1,601	2,057	2,303	2,513	2,882	2,973	3,050		
	24,199	1,671	2,293	2,457	2,188	3,017	3,493	4,393	4,687		

4. 養成訓練コース訓練シラバス

4-1 訓練シラバス(旋盤)

VOLUME I:
MACHINE SHOP

PRE - EMPLOYMENT TRAINING



NATIONAL INSTITUTE FOR SKILL DEVELOPMENT
DEPARTMENT OF LABOUR

FOREWORD

The purpose of this booklet is to introduce curriculum as developed by the curriculum development unit at the NISD. The curriculum follows a systems approach and the model is designed to meet specific objectives of skills training as determined by the DOL.

The idea to establish this curriculum is for the instructor both at the central and the regional areas in order to inform its scope and essence of each training which is standardized. I sincerely hope that this training material will be beneficial to everyone who is connected with this work. I would like to express my appreciation to Chief of Work-shop, Chief of Unit, ILO Experts and KMIT staff who gave much of their time to assist and advise on the development and progress of this work.

Ampol Singhakowin

Mr. Ampol Singhakowin
Director, NISD

NATIONAL INSTITUTE FOR SKILL DEVELOPMENT
DEPARTMENT OF LABOUR

PRE - EMPLOYMENT TRAINING
COURSE OUTLINE
FOR
LATHE OPERATORS

1. OBJECTIVES:

This course is offered to provide trainees with the basic skills in turning operations and related subjects in order to meet the employment needs of industries. The objectives of this course are classified as follows:

- 1.1 to produce lathe operators for industries
- 1.2 to produce skilled workers in this field to be assistant technicians
- 1.3 to give the trainees a sound foundation in order to upgrade themselves
- 1.4 to train and to encourage the skilled workers to own their business
- 1.5 to stimulate in trainees good habits, and attitudes, and rational thinking, to be good members of society

2. LENGTH OF TRAINING:

The trainees will be trained both in theoretical and practical courses at NISD for 10 months; followed by 2 months in-plant training.

3. QUALIFICATIONS:

- 3.1 16-25 years of age
- 3.2 passed 3 years secondary schooling
- 3.3 physically fit
- 3.4 pass the competitive examination given by NISD

/2....

4. CERTIFICATION:

The graduate of this course will receive a certificate on pre-employment training as Lathe Operator issued by the NISD, Department of Labour.

5. OUTLINE OF THE COURSE:

LATHE OPERATOR

Code		Period	
		Th.	Pr.
MS. 01	General Safety in Machine Shop	4	-
MS. 02	Measurement	60	60
MS. 03	Shop Mathematics	30	-
MS. 04	Reading Blue Prints - Drawing	16	24
MS. 05	Engineering Materials	20	-
LO. 01	Fitting Work	26	385
LO. 02	Drilling, Reaming and Boring on Drilling Machine	2	40
LO. 03	Turning	45	348
LO. 04	Shaping (Horizontal)	2	38
Total		205	1395
		1600	

Note:

MS. = Machine Shop (General)

LO. = Lathe Operator

6. DESCRIPTIONS:

MS. 01 General Safety in Machine Shop

To study the safety rules for machine shop work, and how to use safety devices. To dress properly for the work, how to act in case of injuries and accidents.

MS. 02 Measurement

To learn the principles of measurement. How to use measuring tools for measuring, checking and transferring the sizes, and also care of measuring tools.

MS. 03 Shop Mathematics

To study mathematical operations, fractions, decimals, simple equations, basic trigonometry and geometry, relevant to work.

MS. 04 Reading Blue Prints - Drawing

This unit will give the trainees understanding how to read and interpret a drawing. Different symbols and other informations given on the drawing. Also how to draw simple drawing of parts.

MS. 05 Engineering Materials

To study different materials used in machine shop operations, their characteristics and properties, etc. Explain the difference between carbon steels and alloy steels. Other materials such as brass, copper, aluminium, fiber and plastic.

LO. 01 Fitting Work

Fitting work unit should give the opportunity for the trainees to perform the various filing operations such as flat, angle and form filing. Also, sawing using power hacksaw and hand hacksaw. Different methods of chiseling and hammering, and lay out work.

/4....

LO. 02 Drilling, Reaming and Boring on Drilling Machine

In the drilling unit the trainees should study how to operate a Stationary drilling machine, and different methods of holding cutting tools in the spindle. Also learn the methods of holding the workpieces for safe drilling operations. Any study the safety related to the drilling operations.

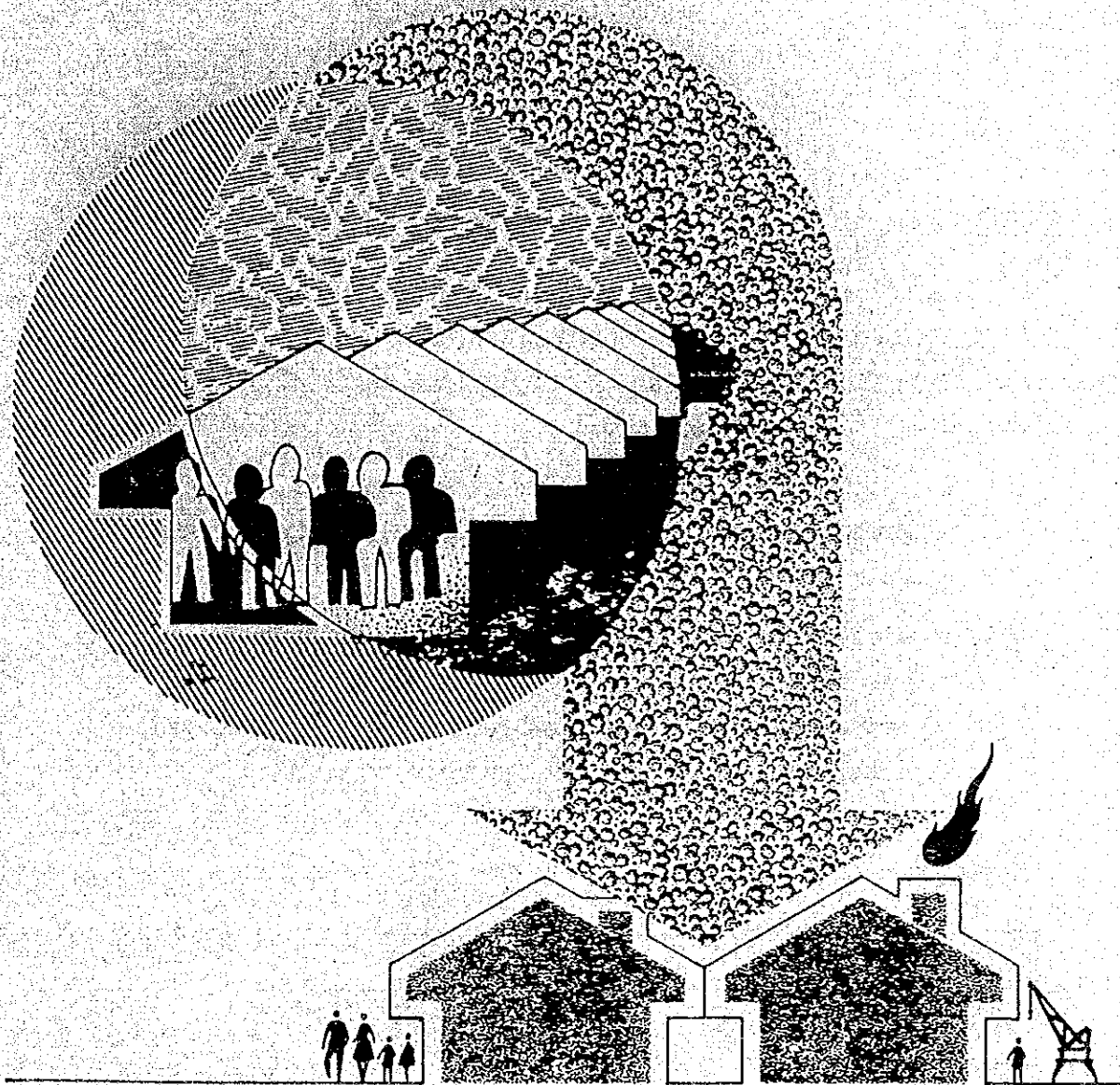
LO. 03 Turning

In the turning unit the trainees have to learn how to operate the center lathe, how to prepare the cutting tool for different turning operations, how to hold the work pieces and holding devices during turning operations. Also setting the lathe for thread cutting and taper turning operations. The trainees should also be able to do calculations for cutting speed and feed and study the safety related to the lathe.

LO. 04 Shaping (Horizontal)

In the shaping unit the trainees study the operations of the horizontal shaper and the different types of cutting tools. Also the method of holding the work pieces; and the safety related to the shop operations.

PRE-EMPLOYMENT TRAINING



NATIONAL INSTITUTE FOR SKILL DEVELOPMENT

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PRE-EMPLOYMENT TRAINING

COURSE OUTLINE

FOR

AUTO-MECHANICS (DIESEL ENGINE)

1. OBJECTIVES:

This course is offered to provide trainees with the basic skills in 2 main divisions of automotive which are diesel engine and electricity, and transmission; in order to meet the employment needs of industry.

The course objectives are as follows:

- 1.1 to produce auto-mechanics (diesel engine) for industries
- 1.2 to produce skilled workers in this field to be assistant technicians
- 1.3 to give the trainees a sound foundation in order to upgrade themselves
- 1.4 to stimulate in trainees good habits and attitudes; and rational thinking, to be good members of society.

2. LENGTH OF TRAINING:

The trainees will be trained both in theoretical and practical courses at ISD for 6 months; followed by 3 months in-plant training.

3. QUALIFICATIONS:

- 3.1 16-25 years of age
- 3.2 passed six years primary schooling or equivalent
- 3.3 physically fit
- 3.4 pass the competitive examination given by the ISD.

/4....

4. CERTIFICATION:

The graduates of the course will receive a certificate of pre-employment training as Auto-Mechanics (Diesel Engine) issued by the ISD, Department of Labour.

/5....

5. OUTLINE OF THE COURSE:

5.1 Engine-Electricity (3 months)

Code	Subject	Period	
		Th.	Pr.
DE. 01	Working Discipline	4	-
DE. 02	Working Safety	8	-
DE. 03	Tools and Usages	18	-
DE. 04	Engine Components	8	-
DE. 05	Principles of Engines	12	-
DE. 06	Cooling System	8	-
DE. 07	Lubrication System	10	-
DE. 08	Fuel System	24	-
DE. 09	Electrical Principle and Electrical Codes	6	-
DE. 10	Battery	6	-
DE. 11	Starter and Glow Plug	12	-
DE. 12	D.C. Generator	12	-
DE. 13	A.C. Generator or Alternator	12	-
DE. 14	The Use of Tools	-	8
DE. 15	Engine Removal	-	8
DE. 16	Removal of Fuel Injection Pump and Injector from Engine. Removal of Valve Mechanism.	-	8
DE. 17	Overhauling Cylinder Head, Valve and Valve Seat Grinding, Changing Oil Seal, Valve Installation	-	16
DE. 18	Removal and Installation of Water Pump, Pulley and Timing Gear	-	8
DE. 19	Removing Oil Pan, Removing and Installing of Oil Pump, Filter and Cam-shaft	-	8

Code	Subject	Period	
		Th.	Pr.
DE. 20	Removal of Piston from Cylinder, Piston Ring, Piston Ring Gap Measuring. Removal and Installation of Piston and Connecting Rod. Installation of Piston Rings.	-	12
DE. 21	Removing Fly-wheel, Crank Shaft and Measuring the Size of Crank Shaft	-	8
DE. 22	Installing Crank-Shaft, Checking Main Bearing Clearance with Plastigage, Checking Crank Shaft End Play by Dial Indicator, Installing Fly-wheel	-	8
DE. 23	Installing Piston into Cylinder, Checking Bearing Clearance of the Connecting Rod by Plastigage	-	8
DE. 24	Installing Cam-Shaft, Oil Pump, Oil Pan and Oil Filter	-	6
DE. 25	Installing Timing Gear, Pulley, Water Pump and Components	-	6
DE. 26	Installing Cylinder Head	-	6
DE. 27	Installing Valve Assembly and Valve Clearance Adjustment	-	12
DE. 28	Installing Exterior Parts of Engine	-	4
DE. 29	Installing and Removing Feed Pump	-	6
DE. 30	Installing and Removing Fuel Injection Pump	-	32
DE. 31	Fuel Injection Pump and Feed Pump Checking	-	32
DE. 32	Installing Fuel Injection Pump to the Engine.		6

Code	Subject	Period	
		Th.	Pr.
DE. 33	Installing and Removing Injector Units Checking Injection Nozzle Opening Pressure, Glow Plug Examining	-	20
DE. 34	Battering Checking	-	12
DE. 35	Starter	-	16
DE. 36	D.C. Generator	-	22
DE. 37	Alternator	-	24
DE. 38	Installing Engine into Car	-	8
	Evaluation	4	32
		144	336
	Total	48	

Note:

DE. = Diesel Engine

5.2 Transmission (Diesel Engine)

Code	Subject	Period	
		Th.	Pr.
DE. 01	Working Discipline	4	-
DE. 02	Working Safety	8	-
DE. 03	Tools and Usages	18	-
DE. 39	Clutch	12	-
DE. 40	Transmission Gear	17	-
DE. 41	Propeller Shaft	5	-
DE. 42	Differential	14	-
DE. 43	Axle	4	-
DE. 44	Brake	15	-
DE. 45	Steering System	15	-
DE. 46	Suspension System	16	-
DE. 47	Clutch Removal and Installation	-	12
DE. 48	Clutch Disassembly and Assembly	-	6
DE. 49	Adjusting Clutch Release Fingers	-	6
DE. 50	Inspecting and Testing Pressure Spring	-	2
DE. 51	Bleeding the Hydraulic Clutch	-	6
DE. 52	Adjusting Clutch Pedal Free Travel	-	3
DE. 53	Removing and Installing Transmission Gear	-	12
DE. 54	Transmission Gear Disassembling and Assembling	-	34
DE. 55	Adjusting Counter Shaft Gear End Play	-	2
DE. 56	Adjusting Output Shaft Gear End Play	-	2
DE. 57	Inspecting Gear Tooth Wear	-	2
DE. 58	Output Shaft and Counter Shaft Twist and Bend Checking	-	2
DE. 59	Removing Universal Joint	-	4
DE. 60	Removing Rubber Type Joint	-	4
DE. 61	Removing and Installing Propeller Shaft	-	3

Code	Subject	Period	
		Th.	Pr.
DE. 62	Propeller Shaft Twist Checking	-	1
DE. 63	Differential Installation and Removal	-	6
DE. 64	Differential Disassembling and Assembling	-	8
DE. 65	Checking Ring Gear Runout	-	1
DE. 66	Adjusting Pinion Gear Preload	-	2
DE. 67	Adjusting Pinion Gear and Ring Gear Tooth Contact Area	-	14
DE. 68	Inspecting Pinion Gear and Ring Gear Tooth Contact Pattern	-	2
DE. 69	Removing and Installing Rear Axle Shaft	-	5
DE. 70	Rear Wheel Bearing Replacement	-	3
DE. 71	Rear Axle Shaft Seal Replacement	-	2
DE. 72	Rear Axle Shaft Twist and Bend Inspecting	-	1
DE. 73	Hydraulic Drum Brake Disassembling and Assembling	-	6
DE. 74	Disc Brake Disassembling and Assembling	-	6
DE. 75	Power Booster Disassembling and Assembling	-	7
DE. 76	Air Brake Disassembling and Assembling	-	8
DE. 77	Disassembling and Assembling Wheel Cylinder	-	2
DE. 78	Disassembling and Assembling Master Cylinder	-	4
DE. 79	Major Brake Shoe Adjustment	-	1
DE. 80	Bleeding the Brakes	-	5
DE. 81	Various types of Brake Shoe Adjustment	-	5
DE. 82	Removing and Installing Steering Gears	-	6
DE. 83	Removing and Installing Steering System	-	6
DE. 84	Steering Linkage Replacement	-	4
DE. 85	Steering Linkage Adjustment	-	2
DE. 86	Disassembling and Assembling Steering System, Rack and Pinion Type	-	3
DE. 87	Disassembling and Assembling Steering System, Recirculating Ball Worm and Nut Type	-	3
DE. 88	Disassembling and Assembling Steering System, Worm Gear Type	-	3

Code	Subject	Period	
		Th.	Pr.
DE. 89	Disassembling and Assembling Steering System, Cam and Lever Type	-	3
DE. 90	Checking and Adjusting Camber Angle	-	3
DE. 91	Checking and Adjusting Toe In, Toe Out	-	3
DE. 92	Checking and Adjusting Caster Angle	-	3
DE. 93	Checking Kingpin Angle and Toe Out on Turn	-	3
DE. 94	Removing Various Components of Suspension System	-	14
DE. 95	Installing Various Components of Suspension System	-	16
DE. 96	Installing Shoe Absorbers	-	4
DE. 97	Installing and Removing Leaf Springs	-	4
DE. 98	Installing and Removing Spring Compressor	-	6
DE. 99	Installing and Removing Spring Eyes	-	4
DE. 100	Installing and Removing Wheel	-	3
DE. 101	Tire Dismounting and Mounting	-	8
DE. 102	Installing and Removing Inner Wheel Bearing	-	6
DE. 103	Inner Wheel Bearing Adjustment	-	4
DE. 104	Wheel Balancing (Static)	-	4
DE. 105	Wheel Balancing (Dynamic)	-	4
	Evaluation	4	32
		136	342
	Total	480	

Note:

DE. = Diesel Engine

6. DESCRIPTIONS:

6.1 Engine-Electricity

DE. 01 Working Discipline

To stimulate in trainees good working habits and attitudes. Regulations and disciplines of trainees at ISD. Hints for trainees when working in industries.

DE. 02 Working Safety

To understand and be aware of the importance of safety; causes of accidents, prevention and correction in case of injuries and accidents.

DE. 03 Tools and Usages

To study various types of tools. How to use store and maintain them.

DE. 04 Engine Components

To enable the trainees to identify and to intimate with engine components (types, name of engine parts).

DE. 05 Principles of Engines

To study the history of engines, types of engine, principles of gasoline and diesel engine, differentiate the various types of engine.

DE. 06 Cooling System

To study about the necessity, duties and various types of cooling system, cooling unit components, and servicing.

/BE. 07....

DE. 07 Lubrication System

To study the various types of lubricants which use in the engine, duties and the application of various types of Lubrication System, components of Lubrication System and servicing.

DE. 08 Fuel System

Study about various kinds of fuel, combustion process, duties of fuel system of diesel engine, fuel supply, components of fuel system, various types of fuel injections pump, fuel injections nozzle, air intake method, troubleshooting and correction.

DE. 09 Electrical Principle and Electrical Codes

Study about principle of electricity, the meaning of terms in basic electricity and reading electrical symbols.

DE. 10 Battery

Study the duties of battery, structure and battery components, reaction when discharging and charging battery. Battery storage and maintenance procedures. Safety rules concerning battery usage.

DE. 11 Starter and Glow Plug

Study the duties of starter and glow plug in various types, operation principle, starter disassembly, starter circuit testing, glow plug circuit testing, troubleshooting and correction.

DE. 12 DC. Generator

Study about the duties of D.C. Generator, various types of D.C. Generator inside components, inspections, disassembly and installation, wiring circuit, voltage measuring, D.C. regulator tune-up, troubleshooting and correction.

/DE. 13.....

DE. 13 A.C. Generator or alternator

Study about the duties of A.C. Generator, various types of alternator, inside components, inspection, disassembly and installation, wiring circuit, voltage measuring, A.C. regulator tune up, troubleshooting and correction.

DE. 14 The Use of Tools

Study about selection of tools, handling tools correctly, position of tool when loosen or tighten screw, size of the tools in relation to the job. The direction of thread of screw.

DE. 15 Engine Removal

Practise how to remove engine from the car, the steps of working; for example, which parts must be removed first, which parts may easily damage, attach lifting device, prepare a suitable place for placing engine, and specific safety rules.

DE. 16 Removal of Fuel Injection Pump and Injector From Engine. Removal of Valve Mechanism

Practise how to remove fuel injection pump and injection nozzles. To study the kind and size of tools, removing method and caution, how to remove rocker arm assembly, examining rocker arm assembly before removal and installation.

DE. 17 Overhauling Cylinder Head, Valve and Valve Seat Grinding, Changing Oil Seal, Valve Installation.

Practise how to loosen cylinder head cap screw, tools selection. Study how to use valve spring compression tools, servicing valve and using valve seat grinding machine, valve installations.

/DE. 18....

DE. 18 Removal and Installation of Water Pump, Pulley and Timing Gear

Practising the methods of removing and installing water pump, changing water pump seal assembly, changing pump impeller and bearing, removing front pulley, removing timing gear and understanding the timing mark on the gear.

DE. 19 Removing Oil Pan, Removing and Installing of Oil Pump, Filter and Camshaft

Practice how to remove oil pan, installing various types of oil pump, the direction of oil distribution, how to remove a full flow, spin on type oil filter, examining and changing new filter, removing camshaft, examining clamping method and removing camshaft, shape and number of gear teeth.

DE. 20 Removal of Piston from Cylinder, Piston Ring, Piston Ring Gap Measuring, Removing and Installing Piston and Connecting Rod, Installation of Piston Ring

To understand how to remove piston from cylinder, consider position and the size of piston, the marks on connecting rod, slip position, the use of ring expander, use a feeler gauge to check ring gap, removing piston from connecting rod, assembling rod, piston and pin, use ring expander to install the rings, consider the ring position.

DE. 21 Removing Fly Wheel, Crankshaft and Measuring The Size of Crankshaft

How to remove locking plates of the flywheel cap screw, consider the mark on flywheel, the use of tool to loosen the flywheel cap screws, flywheel ring gear replacement, removing crankshaft, consider the mark on the main bearing caps, main bearing inspection, consider main bearing position, measuring the diameter of crankshaft with micrometer, repairing of crankshaft.

/DE. 22.....

DE. 22 Installing Crankshaft, Checking Main Bearing Clearance With Plastigage, Checking Crankshaft End Play by Dial Indicator, Installing Flywheel.

Practice how to tighten crankshaft main bearing caps bolt with torque wrench, measuring the clearance between main bearing journal and main bearing inserts with plastigage, measuring the crankshaft end play with dial indicator, installing flywheel, checking flywheel clutch disc contact surface run out with dial indicator.

DE. 23 Installing Piston into Cylinder, Checking Bearing Clearance of the Connecting Rod by Plastigage

Practice how to install piston into the cylinder, study the direction and position of piston, piston ring arrangement, the use of piston ring expander, tighten connecting rod nut and bolt with torque wrench, checking clearance of the bearing by plastigage.

DE. 24 Installing Camshaft, Oil Pump, Oil Pan and Oil Filter

Practice how to install camshaft, inspecting camshaft bearing, camshaft fitting, oil pump assembly, install oil tube, replacing oil gaskets and oil pan seal, replacing oil pan, tightening the screws around oil pan, installing oil filter.

DE. 25 Installing Timing Gear, Pulley, Water Pump and Components

Installing timing gear in a correct position, installing front pulley, installing locking plate of the screw of the front pulley, assembly water pump and water hose of the cooling system, selection of gasket, gasket cutting.

/DE. 26....

DE. 26 Installing Cylinder Head

Practice how to install cylinder gasket, determining proper steps for installing cylinder head, method of tightening cylinder head cap screws with torque wrench.

DE. 27 Installing Valve Assembly and Valve Clearance Adjustment

To enable the trainees to install rocker arm, rocker arm shaft, push rod and spring assemblies. Adjusting Valve clearance, rocker arm assembly installation.

DE. 28 Installing Exterior Parts of Engine

To enable the trainees to install various components of engine, such as fuel filter, fuel tube, etc.

DE. 29 Installing and Removing Fuel Feed Pump

Practice how to remove and install fuel feed pump. Inspecting damaged parts. Replacing piston return spring, piston and non-return valve.

DE. 30 Installing and Removing Fuel Injection Pump

Practice how to install fuel injection pump and fuel injection pump disassembly. Inspecting fuel pump camshaft, tappet, pumps barrel, plunger and delivery valve ware and others. Studying the operation and the duties of various parts.

DE. 31 Fuel Injection Pump and Pump Checking

This unit is an important part of Diesel engine. The trainees must learn how to use fuel injection pump testing machine and fuel feed pump testing machine, determine steps of testing when testing fuel injection pump and feed pump.

/DE. 32....

DE. 32 Installing Fuel Injection Pump to the Engine

Practice how to install fuel injection pump to the engine correctly after testing fuel injection pump.

DE. 33 Installing and Removing Injector Units, Checking Injection nozzle opening pressure. Glow Plug Examining.

Practice and understand how to remove injector unit and inspecting nozzle. Cleaning soot from injector unit, testing and adjusting injection pressure. Safety precaution in testing injector. Checking glow plug. Installing injector unit and glow plug to the engine.

DE. 34 Battery Checking

Practice how to check electrolyte specific gravity. Checking cell voltage. Capacity test. Batteries connecting method. Battery using caution.

DE. 35 Starter (Starting Motor)

Practice how to remove and install starter. Starter disassembly. Checking starter. Circuit wiring of starter and glow plug. Solenoid inspecting.

DE. 36 D.C. Generator

Practice how to remove and install D.C. generator. D.C. generator disassembly. Checking D.C. generator output. Regulator adjustment.

DE. 37 Alternator

Practice how to remove and install A.C. generator. Alternator disassembly. Deficient checking. Install new brushes and bearing. Circuit wiring. Alternator out put voltage test. Regulator adjustment.

/DE. 38...

DE. 38 Installing Engine Into Car

To stimulate the trainees to have a knowledge of installing the engine correctly. Charging system circuit terminal and starter circuit terminal connecting. Engine starting. Deficient inspecting,. Examine after work. Safety precaution of starting engine.

6.2 Transmission (Diesel Engine)

DE. 01 Working Discipline

To stimulate in trainees good working habits and attitudes. Regulations and disciplines of trainees at ISD. Hints for trainees when working in industry.

DE. 02 Working Safety

To understand and be aware of the importance of safety, causes of accidents, prevention and correction in case of injuries and accidents.

DE. 03 Tools and Usages

To study various types of tools. How to use the tools correctly. Storing and maintenance.

DE. 39 Clutch

To study the duties, operation and components of various types of clutches. Maintenance procedure and the correct usage of clutch, and servicing clutches.

DE. 40 Transmission Gear

Study working mechanism of gears, duties and operation of various types of transmission gears, such as, sliding gears types, synchronizer sleeve ring gear. Typical gears such as, spur gear, helical gear. Components of transmission gear. Relative operation of component. Transmission gear lubrication. Operation and maintenance procedure when using a car and gear servicing.

/DE. 41....

DE. 41 Propeller Shaft

Study the duties and various types of propeller shaft, various types of joints and their components. The relative operation between propeller shaft and joint. Maintenance and servicing.

DE. 42 Differential

Study the duties, and the reason of using differential. The components and operation principles. The relative operation of components, various types of differential. Typical ring gear tooth contact patterns. Pinion preload adjustment, gears clearance. Differential lubrication. Maintenance and servicing the differential.

DE. 43 Axle

Study the duties and operation of axle. Various types of axles. Maintenance and servicing.

DE. 44 Brake

Study brake operation and brake components. Various types of brake service.

DE. 45 Steering System

Study the functions of steering system. Operation principle of the unit. Fundamental principle of steering operation. Fundamental theories of wheel angle. Components of steering system. Front wheel angle alignment. The result of incorrect wheel angle alignment. Maintenance and servicing.

/DE. 46....

DE. 46 Suspension Systems

Study the function of suspension systems. Fundamental theories, such as, limit of elasticity, stress, etc. Various types of suspension system and their components. Relative operation of the unit. Shock absorber operation principle. Various types of tires. Read the tire code number, wheel balancing, static and dynamic balance. Tire inflating. Tire repair.

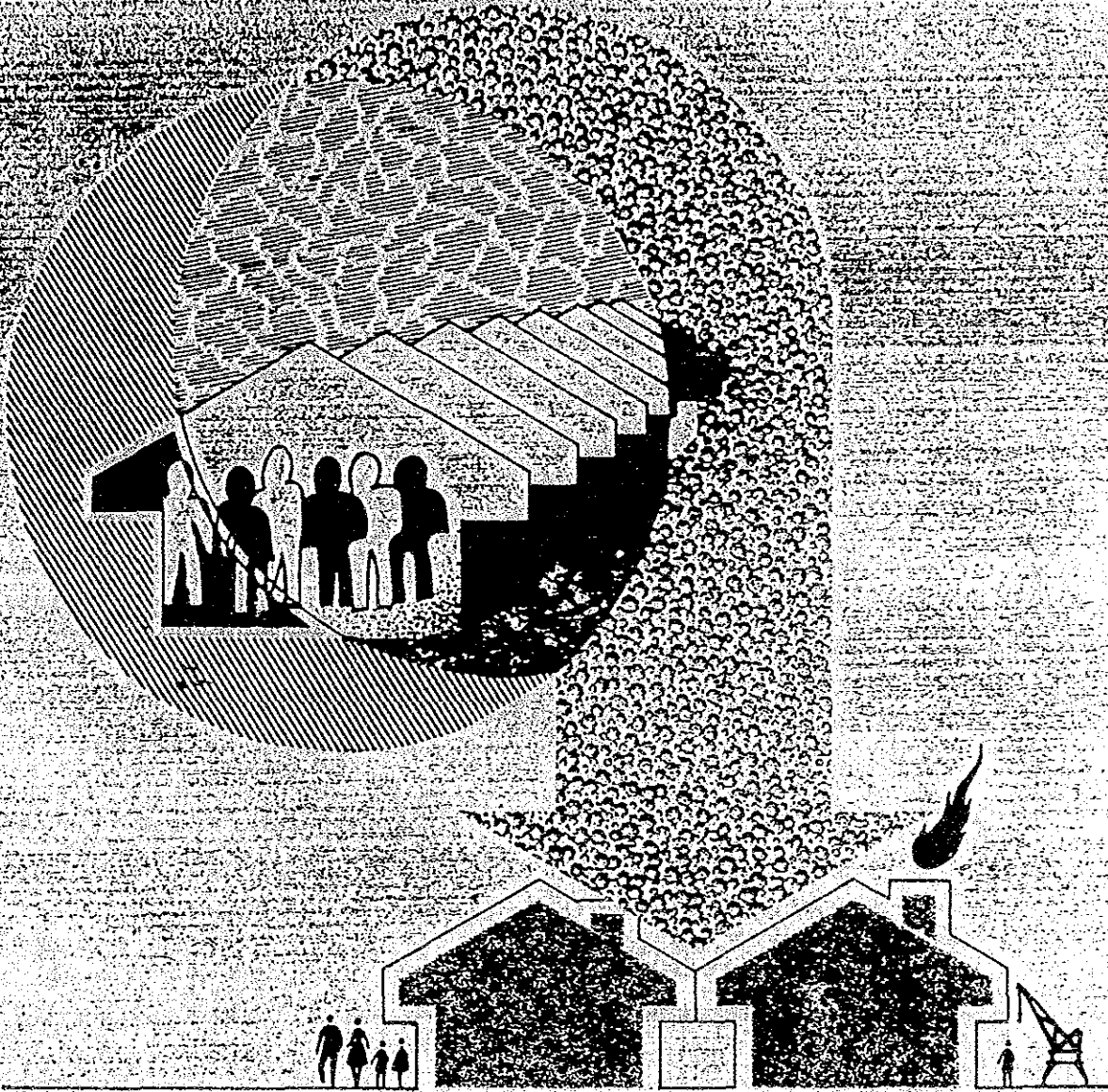
DE. 47-DE.105

Practice removing, installing, disassembling, assembling, inspecting and adjusting Diesel engine transmission system.

Evaluation

The trainees will be evaluated both in practical and theoretical.

PRE-EMPLOYMENT TRAINING



NATIONAL INSTITUTE FOR SKILL DEVELOPMENT

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PRE - EMPLOYMENT TRAINING

COURSE OUTLINE

FOR

MECHANICAL DRAUGHTSMAN

1. OBJECTIVES:

This course is offered to provide trainees with the basic skills in Mechanical Drafting in order to meet the employment needs of industry.

The course objectives are as follows:

- 1.1 provide training programs in Mechanical Drafting to meet the needs of industries in Thailand.
- 1.2 conduct manpower development programs for retraining needs and for curriculum development either individually or in cooperation with other public and private institutions.
- 1.3 provide occupationally oriented programs for the youth in Thailand.
- 1.4 provide an open door to self - realization through curricular and co-curricular learning resources, innovative and traditional human orientation and teamwork.
- 1.5 provide opportunities to develop job - related, vocational, cultural and personal skills.

/2....

2. LENGTH OF TRAINING:

The trainees will be trained in theoretical and practical courses at NIED for 11 months; followed by 4 months in-plant training.

3. QUALIFICATIONS:

- 3.1 the applicant must meet the age requirement of this program, 16 to 25
- 3.2 the applicant must have completed at least grade 10 or equivalent to M.S.III
- 3.3 the applicant must present evidence of acceptable physical and mental health.
- 3.4 the applicant must have good behavioral record
- 3.5 the applicant must pass the entrance examination of the National Institute for Skill Development.

4. CERTIFICATION:

The graduates of the course will receive a certificate of pre-employment training as a Mechanical Draughtsman issued by the NISD, Department of Labour.

5. COURSE OUTLINE:

The first three months (480 periods), student will learn basic drawing which is theoretical 120 periods and practical 360 periods.

Code	Subject	Period	
		Th.	Pr.
SD. 01	Shop Mathematics	12	36
SD. 02	Visual Arts	24	72
SD. 03	Sketching	12	36
SD. 04	Standard Drawing	72	216
TOTAL		120	360

After the student completes basic training of 480 periods, he will be trained in Mechanical Drafting for eight months (1280 periods).

Code	Subject	Period	
		Th.	Pr.
MD. 01	Mechanical Materials	56	-
MD. 02	Manufacturing Processes	20	92
MD. 03	Guages	16	40
MD. 04	Sketching	12	100
MD. 05	Mechanical Drawing	108	756
MD. 06	Working Study	-	80
TOTAL		212	1068
		1280	

Note: MD. = Mechanical Draughtsman

6. DESCRIPTIONS:

SD.01 Shop Mathematics

Student will review basic concepts of arithmetic and apply these concepts to

- Area Calculation
- Volume Calculation
- Perimeter Calculation
- Square Root

SD.02 Visual Arts

Student will study of primary colours, light, shade and shadow of the pictures.

SD.03 Sketching

A study of shop sketch and out door sketch.

/SD.04...

SD. 04 Standard Drawing

A study of basic drawing, applied geometry and perspective drawing.

MD. 01 Mechanical Materials

A study of the properties and strength of materials.

MD. 02 Manufacturing Processes

A study of the characteristics of industrial material, and the process employed in their conversion such as shape changing processes, dimension changing processes, joining processes, Physical properties changing processes.

MD. 03 Gauges

Practical with fine measuring instruments such as vernier, micrometer, inside, outside caliper and steel rules.

Train student the methods of using and maintenance of the gauges.

MD. 04 Sketching

Shop sketch and out door sketch. Student will learn how to sketch of mechanical parts in work shop.

MD. 05 Mechanical Drawing

Student will study the method of drawing of various view, sectional drawing, drawing of simple fastened workpieces with threads, keys, rivets, pins, spring, washers, gears, cams, pattern development, specification, related drawing, and working drawing.

MD. 06 Working Study

Students in Mechanical Draughtsman will have to be trained in Auto-Shop and Machine-Shop within and without National Skill Development Centre to gain their experience in the field of Mechanical Drafting.

