



**โครงการพัฒนาระบบบริการอนามัยอุตสาหกรรม**  
**INDUSTRIAL HEALTH SERVICE DEVELOPMENT**

**DEVELOPMENT OF PROVINCIAL  
INDUSTRIAL HEALTH SERVICE  
PROJECT**

**... A Trial Model for Thailand**

**Mrs. Michelle Hibler**  
**Editor-in-Chief**  
**The IDRC Report**  
**Health Service Division**



# PROJECT TITLE : DEVELOPMENT OF PROVINCIAL INDUSTRIAL HEALTH SERVICE -A TRIAL MODEL

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2 years

US. \$ 42,650





## OBJECTIVE OF THE STUDY

The main objective of the proposed project is to develop a model of the provincial industrial health services utilizing existing health resources and supportive bodies and coordinating with available local provincial agencies. Such model will be applicable to industrial health program planning in Thailand and other developing countries of relevant nature.

The specific objectives are :

- (1) To collect and identify general industrial health statistics and problems in Samutprakarn Province and to review recent labour legislation and government regulations related to occupational health and safety.
- (2) To assess in selected industries environmental conditions together with safety and ergonomic conditions of machinery and equipment.
- (3) To identify and examine health and welfare conditions of the workers.
- (4) To train and evaluate industrial health personnel by professional natures (i.e., physicians, nurses, industrial hygienists and first-aid attendants) in Samutprakarn Province.
- (5) To educate and evaluate senior management staff of selected manufacturing enterprises.
- (6) To make recommendations for change related to effective industrial health program that could design and develop an appropriate model of provincial industrial health service.
- (7) To suggest future research on specific training strategies and occupational injury and disease related to industrial health.



# OVERVIEW OF THE IDRC-FUNDED PROJECT

OVERVIEW of the  
NATIONAL OCCUPATIONAL HEALTH AND SAFETY  
SERVICE DELIVERY MODEL SYSTEM  
as proposed by the Occupational Health  
Department and to be funded by  
the International Development Research Centre  
of Ottawa, Canada

## Phase I      Survey and Identification

A systematic survey and analysis through interviews, inspection, medical and laboratory examinations in three typical Thai industrial settings: textile, chemical and foundry.

## Phase II      Seminar

A gathering of the communities of concern in industrial health, i.e., industrial physicians and nurses, first-aid attendants, industrial hygienists and senior management and representatives of labor, in order to reawaken a commitment to excellence in health care delivery with the submission of the preliminary results from Survey in Phase I.

## Phase III      Formation of a National Planning Board

A National commission on industrial health and safety will be formed from the communities of concern to develop individual health service models, to be implemented through the public sector. Consultants will be appointed to redefine models as necessary to fulfill the goals as specified by the commission.

## Phase IV      Outer-National Consultation

At the acceptance of the revisions and the finalization of the report, the model will be distributed to other developing countries to use as a base in their own health delivery system.



## Research Implementation Schedule

**A tentative research implementation schedule is as follows:**

**August 1979 - July 1980**

[illegible]



## Research Implementation Schedule (continued)

**August 1980 - July 1981**

[illegible]



# Adjusted Research Implementation Schedule

## PHASE I : IDENTIFICATION OF PROBLEMS

PERIOD : March - 30 December, 1980

[illegible]

**PHASE II : TRAINING OF PERSONNEL FOR KNOWLEDGE IMPARTATION**

**PERIOD** : January - June 1981

<b>No.</b>	<b>ACTIVITIES</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>
1.	Training needs analysis and behavioral objectives design for individual curricula of 5 professionals	---					
2.	Educational experts consultation	---					
3.	5 Training curriculum development	---	---				
4.	Training materials development		---	---			
5.	Evaluative tools development			---			
6.	Training implementation ( 5 professionals ) and immediate learning outcome evaluation				---		
7.	After - 2 weeks learning outcome evaluation				---	---	
8.	Report preparation					---	
9.	Report submission to IDRC						---



# PHASE III : INDUSTRIAL HEALTH SERVICE MODEL SETTING

PERIOD : July - November 1981

No	ACTIVITIES	Jul	Aug	Sep	Oct	Nov
1	Collection of necessary documents	---				
2	Announcement of meetings and correspondence to concerned authorities and participants	---				
3	Preparation of technical documents for meetings		---	---		
4	Administrative preparation for meetings		---	---		
5	One-day meeting on first week, followed by necessary documents preparation for second meeting of the following two weeks				==	
6	One-day second meeting, followed by necessary documents to be sent to participants and consultants for immediate feedback					---
7	Report preparation and Report submission to IDRC					---



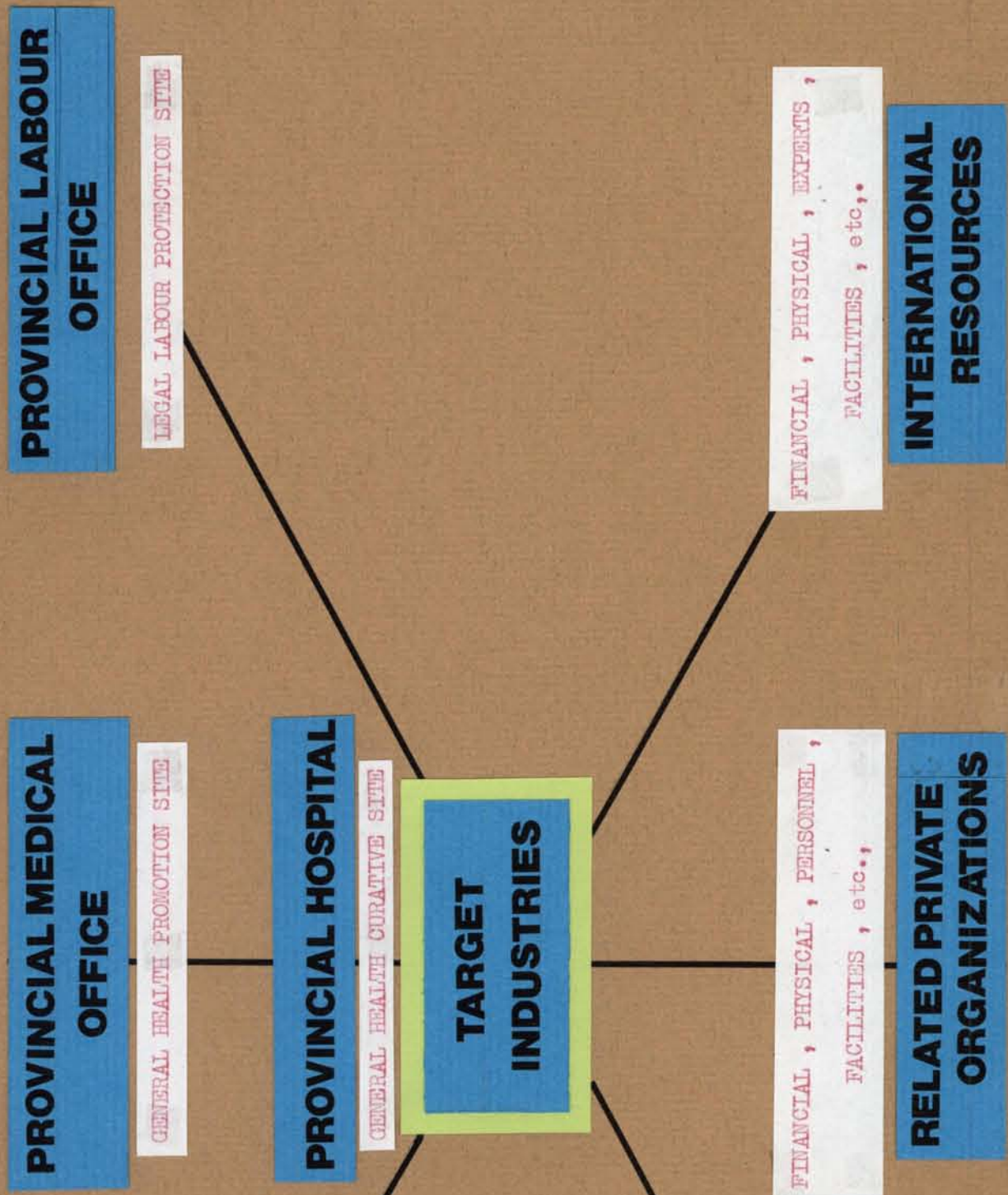
PHASE IV : FINAL REPORT PREPARATION

PERIOD : December 1981 - February 1982

No	ACTIVITIES	Dec 1981	Jan 1982	Feb 1982
1	Industrial health service appropriate model design (adjusted from the opinions of local people with the integration of various outerregional experts opinions)	==		
2	Report preparation of item 1	==		
3	Preparation of whole project final report		==	
4	Preparation of final report publication			==
5	Final report submission to IDRC			==



**OPERATIONAL AGENCIES :**



**SUPPORTING AGENCIES :**



**Coordinating Structure of the Industrial Health Service Model**



# DEVELOPMENT OF PROVINCIAL INDUSTRIAL HEALTH SERVICE

- 1) The past two decades have witnessed rapid industrialization in Thailand. But investigations have revealed that insufficient attention continues to be paid to the health and safety of these workers. The inadequacy of labour legislation combined with an acute shortage of qualified personnel to supervise the existing legislation and the non-availability of adequate instrumentation have contributed to the neglect of health and safety at workplaces.
- 2) Although a significant proportion of industrial accidents and injuries in Bangkok Metropolis were reported unreliably (at least an 20 to 30 percent under-reporting rate for injuries), the total number of reported accidents maintained by the Department of Labour of the Ministry of Interior has demonstrated a steadily increasing trend. What is more important is that these statistics and numbers are largely concerned with accidents and injuries and not with occupational disease that develops from long-term exposure to noisy, dirty and hot working conditions and to various toxic chemicals and physical hazards. The hundreds of thousands of cases that are counted are only those which are "recognized", those which result from such extremely dangerous or unhealthy conditions that the development of disease is obvious and provable. Uncounted in these already shocking statistics will be the thousands of workers who die prematurely of some common illnesses, such as heart or lung disease or cancer or a multitude of other illnesses that are also caused or aggravated by exposure to the environmental insults of the workplace.
- 3) Aside from the industrial enterprises in the Bangkok Metropolis, the Province of Samutprakarn has the largest number of industrial establishments. In 1977 alone 4,205 workers have met with accidents according to the workmen's compensation statistics by the Samutprakarn Provincial Labour Office. Of the total 8,285 various accident cases in 1977 in the Samutprakarn Hospital, one-sixth (1,370) was due to occupational injuries and over 100 more were either permanently or temporarily disabled as a result of work accidents from neighbouring industrial enterprises in Samutprakarn Province. These 4,205 cases corresponded to 25.9% of the total cases of 16,207 in the whole country. Over 90% of the employees in this province are drawn from different regions of the country by migrating purposes for better living. All of them go back home after getting too sick to work or being disabled. Some of them died helplessly



or otherwise chronically struggled and were a burden on families and communities while forgotten by the industrial community they had served. According to available information from the Occupational Health Centre I situated at this province, these have occurred mostly in chemical, metal products manufacturing and textile industries. The proportion of workers by type of major industries in the province is about 40% of textile, 30% of fabricated metal products, and 11% of chemical industries.

- 4) Current health activities are inadequate to look after the health of industrial workers. A need is thus strongly felt to upgrade the quality of industrial health personnel, both curative and preventive, by providing them with modern instruments and training them in up-date knowledge and techniques. It is also vital to let senior managerial staff understand about occupational hazards, to which their workers are exposed, and to secure their participation in launching necessary health programs.
- 5) The primary concern of businessmen and engineers with Thai workers lies in increasing their productivity. This means that maintenance crews are cut down to the minimum number and machinery is not kept in good working order. It means there are fewer shutdowns for preventive maintenance. Greater productivity often means less investment in proper ventilation, air-pollution control, and other devices that make the work environment safer. Without making a thoroughgoing education for factory owners or managers and proper government measures, greater productivity may demand that the factory people sacrifice their lives and well-being for more production and profit. If present trends continue, it is almost certain that conditions will get worse rather than better.
- 6) The Occupational Health Department, School of Public Health of Mahidol University, is the only technical body in Thailand for university-level education of industrial hygienists and physicians of managerial responsibility. Besides the bachelor degree students in occupational health majoring in industrial hygiene, it trains postgraduate students for the MPH courses (general public health and urban health) and for the MSc course majoring in occupational health.



**Number of manufacturing enterprises and workers by type of industry in Samutprakarn Province in 1976 with rank**

<b>Type of Industry</b>	<b>Number of enterprises</b>	<b>Number of workers</b>	<b>Rank of industry by number of workers</b>
<b>Food products</b>	<b>97</b>	<b>4,988</b>	<b>IV</b>
<b>Textiles, apparel and leather products</b>	<b>193</b>	<b>25,995</b>	<b>I</b>
<b>Wood and plywood products</b>	<b>186</b>	<b>2,429</b>	<b>VI</b>
<b>Paper products and printing</b>	<b>26</b>	<b>1,914</b>	<b>VII</b>
<b>Chemical, petroleum, rubber and plastic products</b>	<b>165</b>	<b>6,738</b>	<b>III</b>
<b>Non - metallic mineral products</b>	<b>27</b>	<b>3,321</b>	<b>V</b>
<b>Metal and fabricated products</b>	<b>392</b>	<b>19,033</b>	<b>II</b>
<b>Total</b>	<b>1,086</b>	<b>64,418</b>	



- 7) The Occupational Health Department of Mahidol University has organized a medical investigation into the health of textile mill workers. In February and March 1979, about 600 workers from three textile mills in Samutprakarn Province were subjected to detailed medical examination. Measurements of environmental conditions in workshops were also undertaken during the research period. The marginal data show that many workers suffered from partial loss of hearing due to exposure to high noise levels reaching around 100 dB(A), respiratory diseases associated with dust, as well as one or more of a series of other disorders such as gastro-enteric illnesses. It proved very urgent to set up a local industrial medicine unit in the Samutprakarn Provincial Hospital on a basis of coordination with available resources both at the provincial and central levels. It also proved that emergency assistance should be given to the preventive and technical bodies, i.e., to improve the efficiency of the Occupational Health Centre I of the Ministry of Public Health and the Occupational Health Department of Mahidol University.
- 8) The Samutprakarn Provincial Hospital has proposed to the government to establish an industrial medicine unit both structurally and functionally in the expansion scheme of the hospital for the fiscal years of 1980/81. Since the unit to be established will be the first of the kind in this country, it is very necessary to coordinate with trained industrial health personnel available both at the provincial and central levels to design for the unit a development scheme including technical instruments and local activity guides. The proposed project will impart required training and basic health needs data and will set up a feasible plan for the forthcoming unit.
- 9) Though many industrial health system both direct and indirect in nature do exist at the present time, the Occupational Health Department of Mahidol University (industrial health technical central body) and some other supporting private organizations are struggling for joining together to strengthen available resources both in terms of personnel and activities, so far effective system of cooperation and coordination of such resources at the provincial level has not been systematically developed. This leaves the industrial health problems with blank answers.





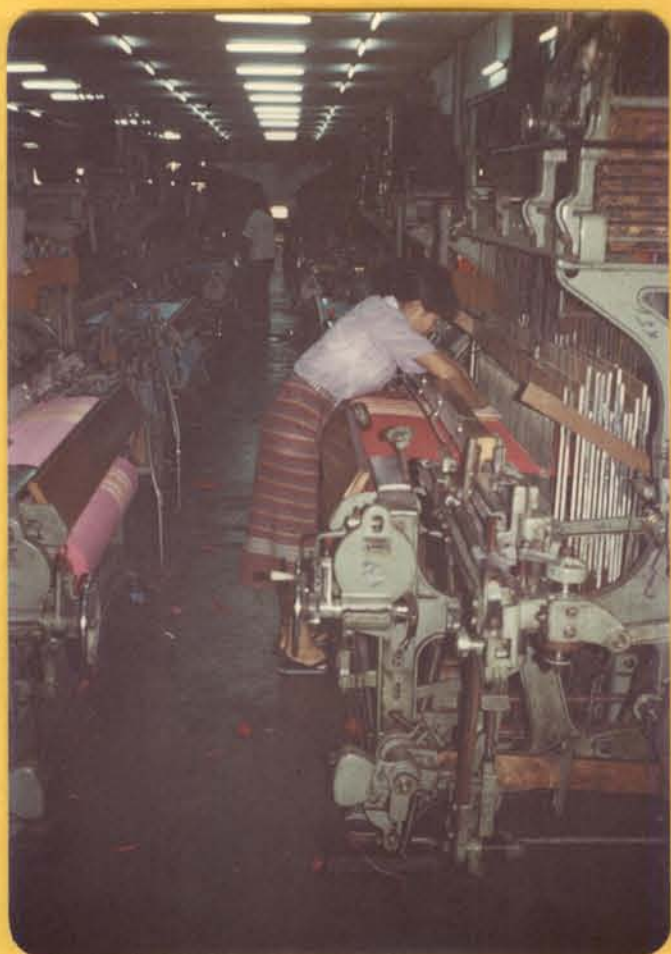
MACHINES HAVE BEEN INTRODUCED INTO TEXTILE INDUSTRY,  
REPLACING CONVENTIONAL TYPE OF TEXTILE MILL.



STILL HUMAN RESOURCE IS NECESSARY, NOT ONLY TO CONTROL  
THE MACHINE BUT ALSO TO BE READY TO SERVE IT.

**TEXTILE MILL**





MACHINE CAN DO SOMETHING BUT NOT ALL .  
WHEN SOMETHING GOES WRONG, HUMAN BEING  
IS THE BEST RESCUER. BUT THE GIRL IN  
THE DEVELOPING COUNTRY DOES NOT  
RECOGNIZE HER VALUABLE CAPABILITY BUT  
TEND TO SERVE THE MACHINE LIKE SHE  
HERSELF IS ITS SUBORDINATE. LOOK AT  
HER OBEDIENT SERVING POSTURE TO THE  
MACHINE.

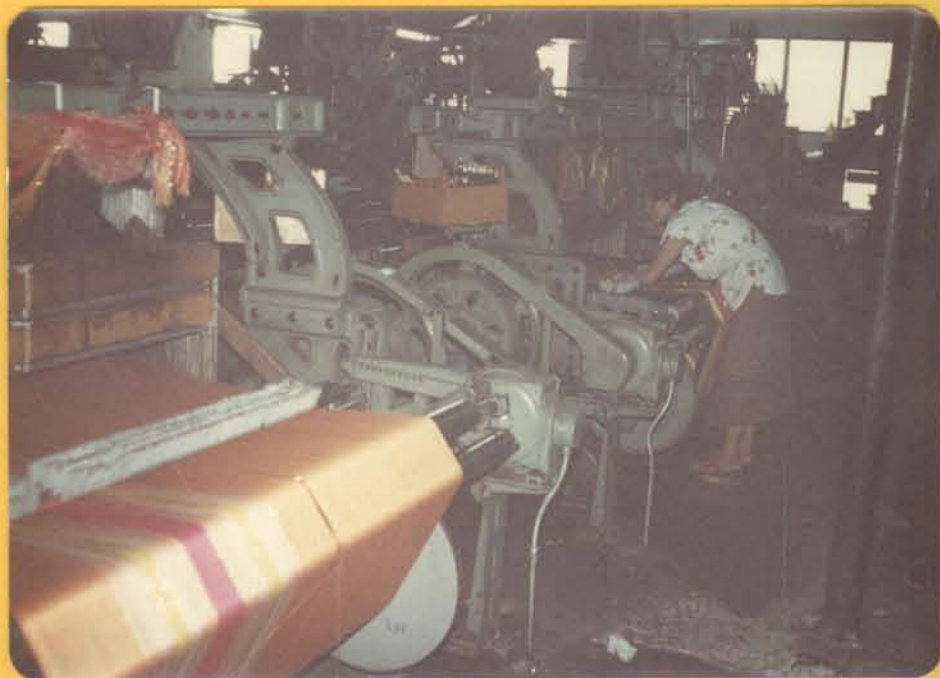


SOME TYPE OF MACHINE STILL NEED MANUAL ASSISTANCE,  
SUCH AS REELING





..... OR EVEN MORE MANUAL WORK AS REACHING IN.

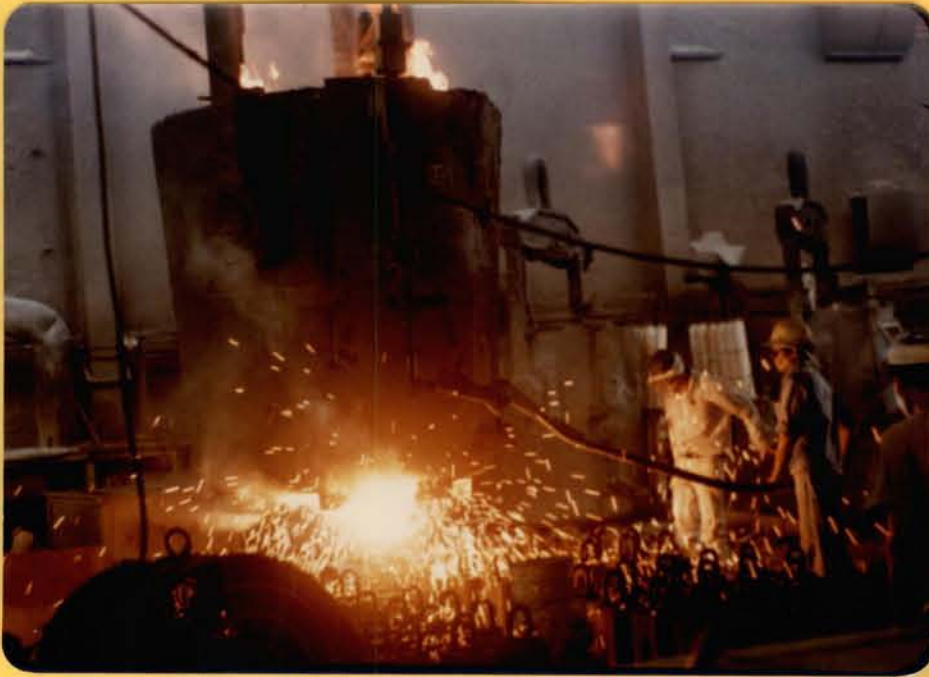


PRODUCT YIELDS ARE THE PRIDE OF FACTORY OWNER, WHAT ABOUT THE WORKER WHO MAKES IT ?



THE BUILDING SERVES FOR TWO MAIN FUNCTIONS. GROUND FLOOR IS USED AS TEXTILE PLANT, DUSTY, NOISY, VIBRATING AND HOT. UPPER FLOOR IS MEANT FOR WORKERS TO LIVE IN AFTER TIRING LONG TIME JOB. THE WORKERS HAVE NO OPPORTUNITY TO ESCAPE FROM THE IRRITATING WORKING ATMOSPHERE EVEN WHEN THEY DO NEED REST AND SLEEP.





MELTING PROCESS IS DONE BY PLACING SCRAP INTO A HUGE BUCKET BY MEANS OF AN OVERHEAD MAGNET AND THEN CHARGED INTO ELECTRIC ARC FURNACES . HAZARDS OCCURING DURING THIS PROCESS ARE TOO MANY ,eg. , ACCIDENTS DUE TO THE MOVING OF HEAVY LEADS, BURNS FROM MELTED LIQUID AND FIRE. EYE DAMAGE FROM EXPOSURE TO ULTRAVIOLET AND INFRARED RADIATION FROM WHITE HOT METAL. LUNG AND RESPIRATORY SYSTEM DAMAGE FROM EXPOSURE TO CARBON AND IRON OXIDE DUST AND TOXIC GASES AND IRRITANT GASES. HEAT STRESS. DERMATITIS (INTERTRIGO) DUE TO PERSPIRATION AND DUST.

## FOUNDRY



REFINERY PROCESS IS DONE AFTER THE STEEL IS MELTED BY ADDING SUBSTANCES TO ACHIEVE THE DESIRED MIXTURE . HAZARDS ARE THE SAME AS MELTING PROCESS WITH MORE RESPIRATORY SYSTEM DAMAGE DUE TO INHALATION OF VARIOUS GASES AND FUMES .





IN THE PROCESS OF MOLDING, MOLTIN METAL IS POURED FROM THE FURNACE INTO A LADLE WHICH IS MECHANICALLY CARRIED OVER TO INGOT MOLDS. HAZARDS ARE THE SAME AS PROCESS# 2 PLUS EYE DAMAGE FROM METAL CHIPS FLYING DURING CUTTING .



INGOTS ARE REMOVED BY MAGNETS AND COOLED. MAINTENANCE OF FIRE BRICK OF FURNACE, LADLE AND MOLDING FLOOR IS QUICKLY DONE AFTER INGOTS REMOVAL FOR THE PREPARATORY OF NEXT MOLDING. THE WHOLE PLACE STILL BE HOT AND THE WORKERS HAVE TO DO A QUICK JOB IN A VERY UNNATURAL POSTURE AND ATMOSPHERE. SINCE LADLES ARE SPRAYED WITH CRUDE OIL , SO DERMATITES FROM OIL CONTACT IS PREVALENT. SILICONS FROM INHALATION OF FIRE BRICK (80% SILICA CONTENT) AND IRON FUME AND DUST ARE MOSTLY UNESCAPABLE.





CRANE OPERATOR, THOUGH WORKS ABOVE OTHER MEN'S HEADS AND EVEN HIGHER THAN THE ACTUAL PROCESSES CAN NEVER BE THOUGHT AS THE HAPPIEST MAN IN FOUNDRY. ALL OF THE PHYSICAL AND CHEMICAL HAZARDS ARE THERE, IN COMBINATION WITH MENTAL STRESS AND STRAIN DUE TO HIGH RESPONSIBLE DUTY OF MOVING MATERIALS ALONG WITH NO CHANCE TO ASSOCIATE WITH THE MEN BELOW BUT ONLY ONE-WAY COMMUNICATION AS SIGNALS FROM THEM. HAZARDOUS GASES AND DUSTS ARE ALSO PREVALENT IN THE HIGHER WORKING ATMOSPHERE CAUSING MORE RESPIRATORY DAMAGE .



# Industrial injuries in Bangkok Metropolis in 1970-1977\*

Year	Temporary Disability	Permanent Disability	Death	Total
1970	184	120	57	361
1971	205	140	70	415
1972	268	198	58	524
1973	538	416	124	1,079
1974	2,987	570	131	3,690
1975	4,071	539	119	4,729
1976	5,243	716	142	6,101
1977	6,394	763	120	7,277
* Hospital admitted cases only. Report for non-admitted victims are not available.				



# WET-CELL BATTERY MANUFACTURING



MIXING CHEMICAL SUBSTANCES FOR CASTING, PASTING AND FORMATION ARE NOT ALWAYS VERY WELL PERFORMED LIKE THIS SINCE THE WORKERS THEMSELVES HAVE NEVER BEEN INFORMED ABOUT HAZARDS AND THE WAY TO ESCAPE FROM THEM. NOTICE THAT THE KIND OF MASK AND GLOVES LIKE THESE MIGHT NOT BE APPROPRIATELY USED AS PERSONAL PROTECTIVE DEVICES FOR THIS KIND OF JOB.



ACID MIXING FOR FORMATION PROCESS IS ONE OF THE COMMON HAZARDS IN WET - CELL BATTERY FACTORY PARTICULARLY SEVERE RESPIRATORY DAMAGE DUE TO ACID AND ITS VAPOUR. AGAIN THE MASK USED IN THIS FACTORY ARE NOT REALLY APPROPRIATE.

NOTICE ALSO THE WET AND SLIPPERY FLOOR, ALONG WITH WET HAZARDS TO HUMAN BODY. THOUGH RUBBER BOOTS ARE USED BY THE WORKERS BUT THEN IS NO SIGN OF ARMS AND HANDS PROTECTION FROM ACID BITE. DERMATITIS IS PREVALENT IN THIS PROCESS.



# CHEMICAL MANUFACTURING

## MELTING & CASTING

PROCESS SEEN HERE IS BEYOND IMAGINATION,  
ITS WORKING PERFORMANCE HAS BEEN DETERIORATING.



**“and what else”**



# PHASE I : EXPERIMENTAL DESIGN

## CRITERIA OF FACTORY SELECTION

1. Medium sized factory ( 500 - 1,000 employees )
2. Thai Owners
3. Open door for us

n = Sample size

- Chemical ; n = 70
- Textile ; n = 200
- Metal fabricated; n = 100

Sample size

$\geq 10 \%$  of total population

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## PHASE II : TRAINING SCHEDULE FOR 5 PROFESSIONALS

TRAINEES	TOTAL	STUDIED FACTORIES	OTHERS OF SAME TYPES	TRAINING STRATEGIES	TRAINING PERIOD
+Industrial Physicians	10	3	7	Seminar	3 April '81
+Industrial Nurses	20	6	14	Group Discussion	8-10 April '81
+First-Aid Attendants	20	6	14	Buddy System	20-24 Apr '81
+Industrial Hygienists	35	10	25	Simulative Model	27 Apr-1 May '81
+Intermediate Industrial Management	15	4	11	Sensitivity Group	17 April '81



**Examples Of Health Problems**  
**Frequently Found In Studied Factories**  
**(IN BRIEF)**

**A. WORKERS' SYMPTOMS**

TYPES	TEXTILE %	FOUNDRY %	CHEMICAL MANUFACTURING %
1. <u>CHEST &amp; LUNG</u>			
Respiratory allergic phenomena	33.5	30.6	29.6
Night or day cough	30.2	46.8	31.6
Chest tightness	56.8	34.7	44.9
2. <u>SKIN</u>			
Allergic rash	49.7	16.9	22.4
3. <u>EYES</u>			
Eyes Irritation	42.2	42.7	64.3
Infected eyes	83.5	83.9	84.7
4. <u>EARS</u>			
Infection of External Ears	38.4	36.3	49.6
Hearing Losses	37.9	63.7	45.9
5. <u>SINUS</u>			
Sinusitis	59.7	79.8	61.2
6. <u>NOSE</u>			
Nasal inflammation	37.4	13.7	34.7
7. <u>TEETH</u>			
Dental caries	37.4	62.9	81.7
8. <u>BACK</u>			
Low back pain	8.3	10.5	8.2
9. <u>FATIGUE</u>	-----increased after work-----		

**B. RELATED WORKING ENVIRONMENTAL CONDITIONS**

Heat	-----Above Standard-----
Lighting	-----Under Standard-----
Noise	-----Above Standard-----
Specific dusts	-----Above Standard-----



C. PROTECTIVE MEASURES

TYPES	TEXTILE %	FOUNDRY %	CHEMICAL MANUFACTURING %
Medical Examination (incomplete)	3.4	95.2	76.5
Worker's Medical Service Contentment	NIL	6.5	35.7
Hearing Protective Device Used	27.2	3.2	6.1
Causes of not using Hearing Protective Device			
- not provided	32.7	35.0	33.3
- unawareness of workers	65.3	60.8	78.3



# TYPICAL HAZARDS FOUND IN STUDIED INDUSTRIES & CONSTRAINTS ON WORKERS' HEALTH MAINTENANCE

STUDIED INDUSTRIES	HEALTH EFFECTS	CONSTRAINTS	RECOMMENDED SOLUTIONS	ANTICIPATED IDRC/RESEARCH ACTIONS
- Wet - cell battery	- Remarkable lead content in workers, bodies, (blood, urine)	<ul style="list-style-type: none"> <li>- Unawareness of workers</li> <li>- Ignorance of management</li> <li>- Lack of knowledge</li> <li>- Inactivity of Authorized personnel</li> <li>- Lack of necessary facilities</li> <li>- Unavailability of support</li> <li>- Lack of cooperation among different agencies</li> <li>- Undeveloped systems</li> <li>- Unorganised industrial health service system</li> <li>- Unsuitable training system</li> <li>- Lack of appropriate training materials &amp; communications media</li> <li>- No public education</li> <li>- No consulting center</li> <li>- No local central body for consultation</li> </ul>	<ul style="list-style-type: none"> <li>- Educational for public</li> <li>- Concerned personnel</li> <li>- Government bodies</li> <li>- Industrial health service facilities setting</li> </ul>	<ol style="list-style-type: none"> <li>1. Training program development</li> <li>2. P.R. campaign</li> <li>3. Expert advice and policy</li> <li>4. Industrial health model development</li> <li>5. Continuing education to public &amp; concerned authorities</li> <li>6. Specific analytical lab. &amp; reference lab.</li> </ol>
- Foundry	- Remarkable manganese content in workers, bodies (blood, urine)			
- Textile	- Cotton - dust poisoning			
- All	- Unsafe conditions		- Integrated safety concept	7. IDRC educational safety programs



# ANTICIPATED OUTCOME OF THE PROJECT

## A. Direct outcome

1. A scientific demonstration of industrial health problems in Thailand.
2. A systematical analysis of such problems taking all concerned variables into account.
3. A replicating key features of industrial service system at the provincial level of Samutprakarn by training approach.
4. An applicable industrial health service model to other regions of Thailand and possible other developing countries of like character.

## B. Indirect outcome

1. A practical service for selected factories.
2. A stimulating example of research activity in industrial health area for both governmental and private industrial health authorities.
3. An excellent opportunity for the principal Investigator, the Department Staff, and the Research Team of different concerned authorities staff mostly middle management personnel to join together and automatically be trained on the industrial health research principle and activities.
4. At the same time it also delivers useful primary and secondary health services to target industrial site as example for them to adopt it into their regular service later.



# NEWS RELEASE

- IDRC Officer in town

## IDRC Officer in town

Mrs. Michelle Hibler Editor -in -Chief, IDRC Reports of the International Development Research Center of Ottawa, Canada is currently in Bangkok to review and consult with the Department of Occupational Health, Mahidol University regarding the submission and implementation of the National Occupational Health and Safety Service Delivery Model System for Thailand.

Mrs. Hibler arrived in Bangkok on Feb.28, and will participate in the setting up of a series of seminars on Occupational Health Services at Mahidol University, Faculty of Public Health during the month of April, as well as go on site inspections of the facilities of health and safety in factories in the Central Region of Thailand.

Professor Malinee Wongpanich, M.D., Chairwoman of the Occupational Health Department, is Mrs. Hibler's hostess during her stay in the kingdom.

- Project to be submitted to CANADA 's IDRC

Professor Malinee Wongpanich, M.D., Chairwoman of the Occupational Health Department, Mahidol University has completed preliminary survey on the National Occupational Health and Safety Service Delivery Model System and submitted the project to the International Development Research Center (IDRC) of Ottawa, Canada for consideration of funding.

Currently Mrs. Michelle Hibler Editor-in-Chief , IDRC Reports is in Bangkok, assisting in a series of Industrial Health Seminars and on site inspection of facilities of health and safety in factories in the Central Region of Thailand.

A professional group, under the direction of Dr. Malinee Wongpanich has been working since 1979 on a survey and analysis through interviews, inspection, medical and laboratory examination in three typical Thai industries: textile, chemical and foundry, in Samut Prakarn Province. Results from this comprehensive study will form the basis for the establishment of aims and priorities in occupational health and safety for a national planning program.

Support for this project by the IDRC will be the first ever of that organization for an essentially urban development project, as previous assistance from IDRC has been for rural projects.



# JOB DESCRIPTION OF THE RESEARCH PERSONNEL

## PROJECT DIRECTOR AND PRINCIPAL INVESTIGATOR

- 1.1 Planning : formulate policy, objectives, procedures and plans.
- 1.2 Organization : communicate with concerned agencies to get their cooperation, then coordinate available resource facilities to get them into function.
- 1.3 Administration : arrange procedures and means of individual function, facilities arrangement, accesses, also supervise these functions.
- 1.4 Data collection : data compilation, checking, analyse, interpret and report.
- 1.5 Activities and resources control : check all of the resources and evaluate all activities according to the plan and schedules.
- 1.6 Training and Meeting  
Activities : responsible for all of the training seminar, and meeting programs on both designing, implementation and evaluation closely advised by Project Educational Consultant.

## PROJECT CO-ORDINATORS

Cooperate with Project Director and Principal Investigator in Planning, organization and administration of all kinds as above stated.



## FIELD DIRECTORS

- 3.1 Closely supervise the technical operations of both occupational health studies and the coordination of them to the clinical studies and research in industrial medicine, environmental hygiene assessment, ergonomic assessment, analytical chemistry and socio-economical and health studies
- 3.2 Responsible for scientific achievements and reports of the above mentioned subareas.

## EDUCATIONAL CONSULTANT

- 4.1 Technically support the Principal Investigator and the Training staff in respects to educational research design, program design, evaluation of the training and meeting programs, competency-based evaluation of different participants
- 4.2 Facilitate the training and meeting programs in all possible ways.

## FIELD RESEARCHER TEAM LEADERS

### A. Clinical Studies and Research

1. Responsible for the management of the research staff and activities dealing with the general physical examination of the workers, also the cooperation and coordination of such activity to the occupational health examination activity and other implementing activities concerned.



2. Collection of all data derived from the above mentioned activities, checking and correcting those data, coding, interpreting, and reporting the outcome.

## **B. ENVIRONMENTAL HYGIENE ASSESSMENT**

1. Responsible for the management of the research staff and activities dealing with the environmental hygiene assessment, also the cooperation and coordination of such activity to other aspects concerned,

2. Collection of all data derived from the above mentioned activities, checking and correcting those data, coding, interpreting, and reporting the outcome.

## **C. ERGONOMICS ASSESSMENT**

1. Responsible for the management of the research staff and activities dealing with the ergonomics assessment, also the cooperation and coordination of such activity to other aspects concerned,

2. Collection of all data derived from the above mentioned activities, checking and correcting those data, coding, interpreting, and reporting the outcomes.

## **D. ANALYTICAL CHEMISTRY INVESTIGATION**

1. Responsible for the management of the research staff and activities dealing with the analytical chemistry investigation, also the cooperation and coordination of such activity to other aspects concerned,

2. Collection of all data derived from the above mentioned activities, checking and correcting those data, coding, interpreting, and reporting the outcomes.



## **E. SOCIO-ECONOMICAL AND HEALTH STUDIES**

1. Responsible for the management of the research staff and activities dealing with socio-economical and health studies, also the cooperation ~~and~~ coordination of such activity to other aspects concerned,

2. Collection of all data derived from the above mentioned activities, checking and correcting those data, coding, interpreting, and reporting the outcomes.