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INDUSTRIAL PLANNING AND PROGRAMMING

DP/GHA/86/001

GHANA

Technical Report: Manpower Requirement Analysis
and Training Plan for the Ministry of Industries,
Science and Technology*

Prepared for the Government of Ghana
by the United Nations Industrial Development Organization,
acting as executing agency for the
United Nations Development Programme

Based on the work of Earle S. Taylor,
Senior adviser in industrial planning and project CTA

Backstopping officer: W.E. Eckert, Industrial Planning Branch

United Nations Industrial Development Organization

Vienna

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SUMMARY

1. The ability of the Government to successfully implement the Industrial Sector Adjustment Programme will depend to a large extent on the in-house technical and administrative capacity of the Ministry of Industries, Science and Technology (MIST) to appraise and monitor present and future industrial investment activities and programmes.
2. For the industrial sector to realize the level of transformation desired and necessary to sustain Economic Recovery the Ministry of Industries must be equipped, not only to produce sector plans but to be able to develop and promote realistic policies and strategies that will provide guidance and motivation to the total industrial, economic and financial communities.
3. The implementation of the new organizational arrangements and systems in the Ministry should therefore be seen as the first step toward adding this improved institutional capability. Implicit in, and fundamental to the success of the new structure and objectives of the Ministry is the programmatic and pragmatic determination, development, deployment and recruitment and retraining of staff for the required skills. This training plan is an integral part of this process.
4. The training programme covers two budgetary periods, 1987/88 and 1988/89 and identifies both the local and foreign cost components. The total cost in 1987/88 is estimated at c1,035,000 plus US\$34,000; and in 1988/89 at c945,000 plus US\$24,000. It is assumed that the major portion of the foreign cost of the training programme will be funded by this (GHA/88/001) project and that the necessary reallocation of budgetted funds will take place at the next project review meeting planned before end of October, 1987. To complete the programme, i.e. modules III & IV, other foreign exchange resources or arrangements will be necessary. Government is urged to study the implications.

1. Introduction

The following training programme is designed to support the reorganized and restructured Ministry of Industries, Science & Technology (MIST). It is based on preliminary assessment of the Ministry's work programme, the gaps and weaknesses which are apparent in the industrial manpower resource of the Ministry and on the additional technical and administrative skills and systems necessary to implement the new organizational arrangements. The programme and topics represent the distillation of views of a broad range of MIST officials, personal observations and recommendations of previous industry-related studies. It should be noted however, that the training needs/requirements as identified here-in are by no means all-embracing or complete, and therefore will require updating from time to time as further needs are uncovered or based on new developments within the Ministry or Industry. For the sake of programming efficiency, the training schedule is organized in three components:

1.1 Component 1 is designed for Senior Planners and other Officials of the Industry and Technology divisions of MIST who are directly responsible for the preparation, management and implementation of the 5-year industrial development plan and those concerned with the monitoring of enterprise restructuring and rehabilitation programmes. These will cover director categories and above. Topics to be discussed will focus more on application and strategy. For maximum benefit participants are required to have a reasonable background in planning, economics or industrial management.

1.2 Component 2 is intended for Senior Administrators and other Officials of the Ministry responsible for the general administration, accounting, information systems and support services and those senior officers who are required to monitor the activities of affiliated government institutions and state enterprises or their subsidiaries. Topics to be discussed will focus on management information systems and general management practices and procedures for improved administration, public accounting and control.

1.3 Component 3 will be largely operational and relate directly to the industrial plan implementation process. Training in this section will be open to all Ministry staff including director category, executive officers, senior secretaries as well as relevant staff of affiliated and subsidiary government institutions.

2. Basic Training Modules

Implementation of the training programme will be done progressively under three main modules:

2.1 Module One (Management Information Systems)

- (a) Word processing, computer-aided accounting and public investment analyses.
- (b) Data entry, data processing and basic statistical analysis of industrial data.

- (c) Computer software appreciation, packaged programmes, application and their enhancements.

2.2 Module Two (Planning, Programming and Monitoring)

- (a) Industrial information gathering, survey techniques, sampling, questionnaire form design, planning organization structure and design, computer report formatting and generation.
- (b) Industrial planning techniques, subsector targetting, industrial strategy design, policy formulation and other policy analytic techniques.
- (c) Work activity and resource programming, work progress monitoring and evaluation techniques.

2.3 Module Three (Reporting and Evaluation)

- (a) Computer-aided performance analyses, and standard Report generation.
- (b) Advance project/policy analytic techniques and evaluation methodologies (with special emphasis on enterprise investment rehabilitation).
- (c) Measurement of industrial performance, indicator selection, derivation and targetting setting techniques.

3. Advance Training Modules

Based on the level of competence required to sustain the industrial planning process and to reduce the recurring need for external consultants, a fourth module is recommended to provide selected technical staff with necessary exposure in the specialized and dynamic areas of economic planning, computer modelling and programming, systems development, maintenance management practices, public investment accounting, financing and reporting and in public policy analysis.

3.1 Training Needs Identification

So far sixty three staff members have been identified for training to support the planning and monitoring responsibility of MIST. Of these fourteen are in the category of Directors and above (formerly Section Heads and above); twenty in the category of Assistant Directors (formerly Industrial Development Officers and above) and twenty-nine in the categories of junior officers, secretaries and clerks. (See details on summary Forms A, B and C.

Three principal officers from the Technical Division: have been identified for advanced training in Economic modeling (see categories having scores of 1-3 on Form A). Similarly, twelve principal officers from the Administration Division have been identified for advanced training in word processing, spread sheet, data management, public investment accounting, public policy analysis and computer-aided accounting. (see categories

having scores of 1-3 on Form B).

To implement this module a combination of external courses and on-the-job project work is suggested. The use of fellowships, study tours and programmes of inter-institution/inter-regional exchanges should be pursued. The limited funds provided under this Industrial planning project will need to be complemented with other resource or facility. It should be noted that external courses do include (and are highly recommended where feasible) courses offered by the national or regional universities, colleges and appropriately organized local workshops/seminars.

3.2 Staff-Skill Requirement Analysis (SRA)

The following assessment of the skills required to implement and sustain the industrial planning and monitoring functions of MIST is represented by three Staff-skill requirement matrices (SRM) shown on three forms. Forms A and B cover the technical and administrative divisions as presented in the reorganization. Form C represents a composite arrangement of the operational skills required and forms A1, B1 and A2 provide further implementation details.

4. Training Implementation Programme

The training and staff development programme presented here is quite comprehensive. Its aim is to expose as many as possible of the Ministry staff to the systems, techniques and modern industrial management practices as they relate and apply to economic restructuring and cost-effective industrial development practices. In the interest of cost and organizational efficiency the courses will be limited to 20 persons per session but will be repeated so as to allow each qualified staff member an equal opportunity. The implementation schedule is given on Forms A3, C1 D and E respectively.

4.1 Implementation Notes for Module Three

The components and timing of this training module are to be defined based on the result of an assessment of progress and success of modules 1 and 2. That is, the form and content are to be agreed on subject to post evaluation review of the previous modules. It is envisaged however, that the resulting programme will take place sometime during the second half of 1988 and will be complemented by fellowships, study tours and inter-institutional exchange programmes to be identified and negotiated.

4.2 Implementation Notes for Module Four

The components of this module are mainly indicative at this stage since neither the organizational arrangements nor the level of funding is yet finalized. To a large extent this aspect of the programme will have to evolve and sufficient use should be made of appropriate courses offered both locally and overseas until it can be formalized within the context of the general training plan of the Ministry. The timing of this formal training has to be left flexible so that relevant changes and programme experiences can be accommodated.

STAFF SKILL REQUIREMENT ANALYSIS - MIST

FORM A

Technical Division

SENIOR PLANNERS AND OFFICIALS OF MIST	No. of Staff	1	2	3	4	5	6	7	8	9	10
		Advance Economic Modeling (Statistics application)	Advance Industrial Planning (calculations)	Advance Project Management	Project Appraisal	Industrial Planning	Economic Modeling	Small Industrial Management	Introduction to Computer	Introduction to Word Processing	Introduction to Statistics S/ware Packages
CHIEF DIRECTOR Technical	1	x	x			x	x	x	x	x	x
CHIEF DIRECTOR Science and Technology	1				x				x	x	x
EXECUTIVE DIRECTOR Small Scale Industry	1			x	x	x		x	x	x	x
DIRECTOR Planning	1	x	x	x	x	x	x		x	x	x
DIRECTOR Statistics	1	x	x		x	x	x				
DIRECTOR Programming	1		x	x		x	x	x	x	x	x
DIRECTOR Manufacturing Operation	1			x	x	x		x	x	x	x
DIRECTOR Special Projects	2			x	x	x		x	x	x	x
DIRECTOR Science and Technology Policy	1				x			x	x	x	x
Total	10	3	4	6	3	8	4	7	9	9	9

COMPONENT 1 1-3 EXTERNAL TRAINING 4-6 INTERNAL TRAINING AND EXCHANGE 7-10 INTERNAL TRAINING

STAFF SKILL REQUIREMENT ANALYSIS - MIST

FORM B

Administration Division

**SENIOR ADMINISTRATORS
AND OTHER OFFICIALS
MIST**

	Max. No. of staff	1 Advance Word/Processing	2 Advance Spreadsheet	3 Advance Public Accounting and Public Policy analysis	4 Work Planning and Monitoring	5 Evaluation Techniques	6 Information Management	7 Industrial Training Techniques	8 Introduction to Computer	9 Introduction to Word Processing	10 Introduction to Spreadsheet	11 Introduction to Data Management	12 Introduction to Small Scale Package	13 Introduction to Accounting Package
CHIEF DIRECTOR Administration	1	x	x		x	x	x		x	x	x	x		x
DIRECTOR Administration/Personnel	1		x		x	x	x	x	x	x	x	x		x
DIRECTOR Finance/State Owned Enterprise Coordination	1		x	x	x	x	x	x	x	x	x	x		x
DIRECTOR General Services	1				x	x	x	x	x	x	x			
ASSISTANT DIRECTORS	4				x	x	x	x	x	x	x			
Total	4	1	3	1	8	8	8	7	7	7	7	6	2	2

COMPONENT 2

1-3 EXTERNAL TRAINING

4-13 INTERNAL TRAINING

STAFF SKILL REQUIREMENT ANALYSIS - MIST

FORM C

Combined Operation

ASSISTANT DIRECTORS EXECUTIVE OFFICERS AND SECRETARIES MIST	Max No. of Staff	Maintenance Planning Systems	Technical Reporting	Industrial Documental Storage and Retrieval	Introduction to Computers and Peripherals	Introduction to Word Processing	Advance Word/ Processing	Basic Data Processing Entry/Retrieval	Advance Data Processing Spread sheet	Introduction to Statistics Package Graphing	Record-Keeping and Documentation
ASSISTANT DIRECTORS Technical and Administrative	20	x	x	x	x	x	x	x	x	x	
EXECUTIVE OFFICERS	8		x	x	x	x					
GRADED SECRETARIES/ CLERKS	20			x	x	x	x				x
Total	48	20	28	48	48	20	40	20	20	20	20

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COMPONENT 3

FORM A1

MODULE ONE: Management Information System

Technical Divisions

	Associate Officers (AD)	Officers (O)	Senior Officer (AD)	Principal Officers (D)	Total
1. Introduction to computers and peripherals	6	6	3	6	21
2. Introduction to word processing	6	6	3	6	21
3. Advance word processing	-	-	-	-	-
4. Basic data processing (data entry/storage)	9	10	3	6	28
5. Advance data processing (retrieval/tabulation)	5	7	3	6	21
6. Introduction to spreadsheet	9	10	3	6	28
7. Advance spreadsheet	5	7	3	6	21
8. Introduction to the use of statistical packages	9	10	3	6	28
9. Advance statistical packages					
10. Computer programming					
11. System development					
12. Public accounting & investment analysis					
13. Public policy analysis					

SEE MODULE FOUR

FORM A2

MODULE TWO: Planning, Programming & Monitoring

Technical Divisions*

	Associate Officers (AD)	Officers (O)	Senior Officer (AD)	Principal Officers (O)	Total
1. Work planning and programming techniques	11	9	3	6	29
2. Industrial information planning and form design	11	9	3	6	29
3. Data management systems and procedures	11	9	3	6	29
4. Industrial planning techniques and strategies	11	9	3	6	29
5. Strategy design and options analysis	11	9	3	6	29
6. Project/Policy analysis and evaluation tech	11	9	3	6	29
Total average participation	11	9	3	6	29

* Industry Division and S & T Division

FORM A3

MODULE TWO: Planning, Programming & Monitoring

On-the-job Technical Training Programme

Technical Divisions*

	Total No of Persons	1987 Aug 24-31 Sep 14-21	1987 Dec 7-18 Apr 18-29#
1. Work planning and programming techniques	29	15	14
2. Industrial information planning and form design	29	15	14
3. Data management systems and procedures	29	15	14
4. Industrial planning techniques and strategies	29	15	14
5. Strategy design and options analysis	29	15	14
6. Project/Policy analysis evaluation techniques	29	15	14
Total average participation	29	15	14

* Industry Division and S & T Division

1988

FORM 81

MODULE ONE: Management Information System

Administration Division

	Sec	Typ	Officers (O)	Senior Officer (AD)	Principal Officers (D)	Total
1. Introduction to computers and peripherals	15	9	9	5	4	42
2. Introduction to word processing	15	9	9	5	4	42
3. Advance word processing	13	2	4	4	4	27
4. Basic data processing (data entry/storage)	10	7	10	4	4	35
5. Advance data processing (retrieval/tabulation)	2	-	-	4	2	8
6. Introduction to spreadsheet	2	-	3	5	4	14
7. Advance spreadsheet	-	-	-	1	1	2
8. Introduction to the use of statistical packages	2	-	3	5	4	14
9. Advance statistical packages						
10. Computer programming						
11. System development						
12. Public accounting & investment analysis						
13. Public policy analysis						

SEE MODULE FOUR

FORM C1

MODULE ONE: Management Information System

On-the-job Training programme

Technical & Administration Divisions

	Total No of Persons	1987 Oct 5-26 Feb 8-20*	1987 Nov 9-27 May 2-16*	1988 Jun 6-20
1. Introduction to computers and peripherals	63	21	21	21
2. Introduction to word processing	63	21	21	21
3. Advance word processing	27	External		
4. Basic data processing (data entry/storage)	63	21	21	21
5. Advance data processing (retrieval/tabulation)	29	External		
6. Introduction to spreadsheet	42	21	21	
7. Advance spreadsheet	21	External		
8. Introduction to the use of statistical packages	42	21	21	
9. Record-keeping and industrial documentation	35	External		
Total average No of participants	63	21	21	21

Mondays, Wednesdays and Fridays 4:30-6:00pm

Form D

5 Budgetary Implications (1987/88/89)

	Total Domestic Costs	Foreign Currency (US\$)	Budgetary 1987/88 Credits and Debits	Budgetary 1988/89 Credits and Debits
5.1 <u>Module One</u>	500,000	(25,000)	500,000 (20,000)	400,000 (5,000)
equipment & support	200,000	20,000	150,000	50,000
consultancy services	180,000	4,000	100,000	80,000
supplies	180,000		100,000	80,000
travel allowances	150,000		60,000	100,000
training fees	190,000	2,000	90,000	90,000
5.2 <u>Module Two</u>	580,000	15,000	365,000 (10,000)	205,000 (5,000)
equipment & support	80,000	4,000	60,000	20,000
consultancy services	100,000	4,000	50,000	40,000
supplies	180,000	4,000	110,000	70,000
travel allowance	120,000	3,000	75,000	45,000
training fee	100,000	1,000	60,000	40,000
5.3 <u>Module Three</u>	250,000	-	90,000	170,000
5.4 <u>Module Four</u>	250,000	15,000	90,000 (4,000)	150,000 (12,000)
TOTAL	1,920,000	59,000	1,035,000 (34,000)	945,000 (24,000)

FORM E
TRAINING PLAN FOR THE
MINISTRY OF INDUSTRIES, SCIENCE & TECHNOLOGY

Strengthening Industrial Planning and Programming in support
of the Government's Industrial Sector Adjustment Programme
PROJECT GHA/86/001

PROJECT OUTPUT 1.3
ACTIVITIES 1.3.1-3

Activity Code	Time (Days)	1987					1988				
		Aug	Sep	Oct	Nov	Dec	Feb	Mar	Apr	May	Jun
1.3.2.A	30	-	-								
B		-	-								
C		-	-								
D		-	-								
E		-	-								
F		-	-								
1.3.2.M	50										
N											
O											
P											
Q											
R											
S											
T											
U											
V											
W											

- A = Workplanning and programming techniques
- B = Industrial Information planning & organization
- C = Data management systems and procedures
- D = Industrial planning techniques and strategies
- E = Industrial strategy design and option analysis
- F = Project/Policy analysis and evaluation techniques
- M = Introduction to computer
- N = Introduction to wordprocessing
- O = Advance wordprocessing
- P = Basic data processing
- Q = Advance data processing
- R = Introduction to spreadsheet
- S = Advance spreadsheet
- T = Introduction to statistical packages
- U = Record-keeping and industrial documentation techniques