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**SEMINAR ON THE QUALITY ASSURANCE  
PROGRAM OF THE AIR TRAFFIC SERVICES  
OF THE CAR/SAM REGIONS**

**“OVERVIEW ON QUALITY CONCEPTS  
AND HUMAN FACTORS”**

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***Lima, 15 October 2002***



# OVERVIEW ON QUALITY CONCEPTS AND HUMAN FACTORS

→ INTRODUCTION

→ HUMAN ORGANIZATIONS

→ QUALITY CONCEPTS/QUALITY ASSURANCE

→ MANAGING HUMAN DEVELOPMENT

→ CONCLUSIONS



# OVERVIEW ON QUALITY CONCEPTS AND HUMAN FACTORS

## → INTRODUCTION



# OVERVIEW ON QUALITY CONCEPTS AND HUMAN FACTORS

→ INTRODUCTION

QUALITY

**REQUIRES TIME TO PROVOKE CHANGES** ⇒ **IF YOU DO NOT HAVE AVAILABLE TIME, DO NOT INITIATE THE PROGRAM**

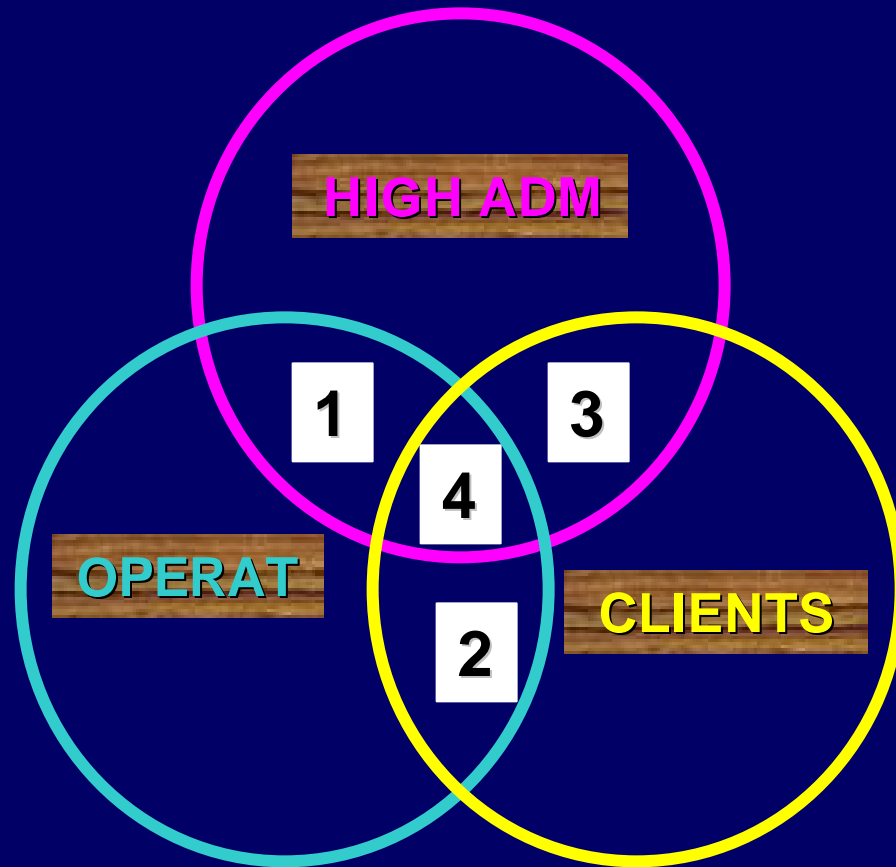
QUALITY

**NEEDS LEADERSHIP TO PROVOKE CHANGES** ⇒ **IF YOU ARE NOT AVAILABLE FOR THIS, DO NOT INITIATE THE PROGRAM**

# OVERVIEW ON QUALITY CONCEPTS AND HUMAN FACTORS

→ INTRODUCTION

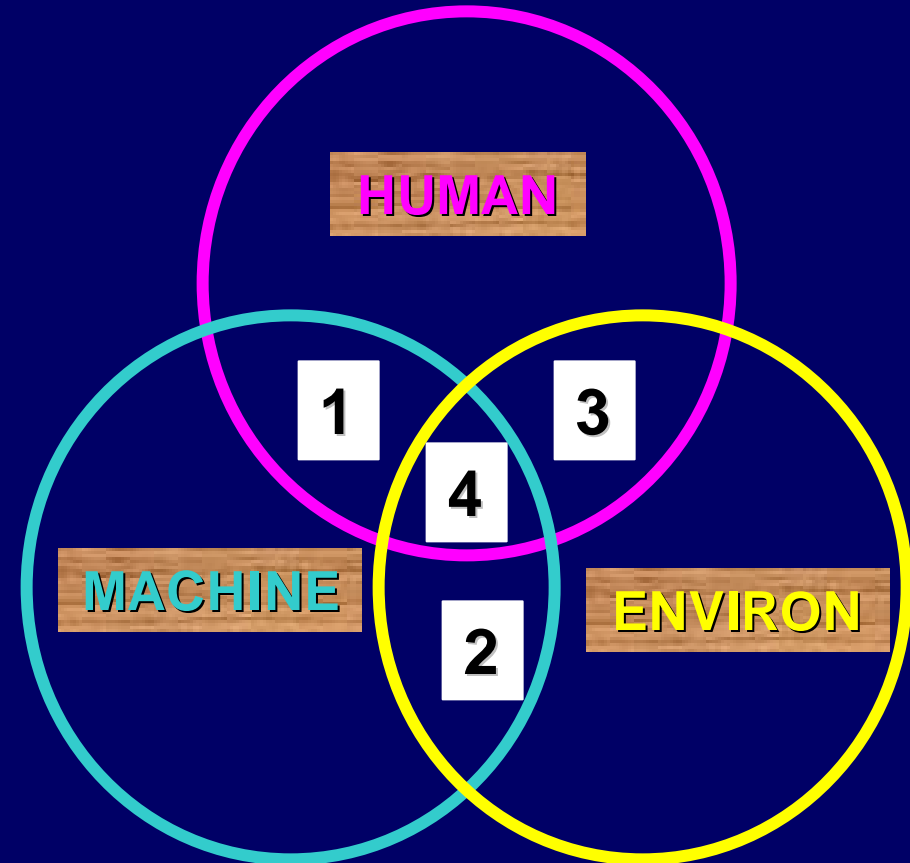
THREE PARTNERS FOR QUALITY



# OVERVIEW ON QUALITY CONCEPTS AND HUMAN FACTORS

→ INTRODUCTION

SOURCES OF  
HUMAN  
FACTORS



# OVERVIEW ON QUALITY CONCEPTS AND HUMAN FACTORS

→ HUMAN ORGANIZATIONS

THREE ELEMENTS IN MODERN SOCIETY

**“HARDWARE”  
(EQUIPMENTS  
MATERIALS)**

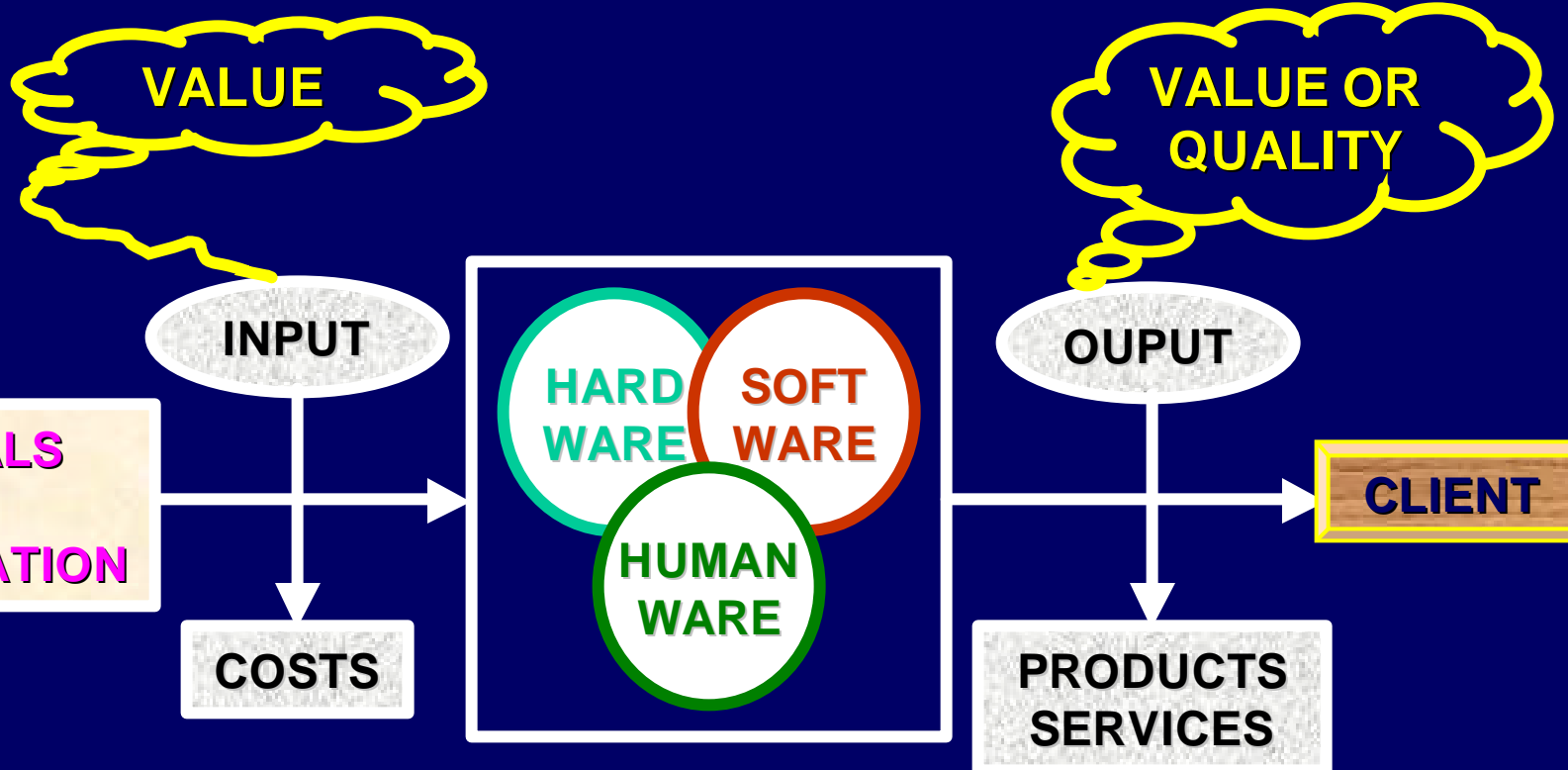
**“HUMANWARE”  
(HUMAN  
ELEMENT)**

**“SOFTWARE”  
(METHODS,  
PROCEDURES)**

# OVERVIEW ON QUALITY CONCEPTS AND HUMAN FACTORS

→ HUMAN ORGANIZATIONS

HOW HUMAN ORGANIZATIONS WORK



# OVERVIEW ON QUALITY CONCEPTS AND HUMAN FACTORS

→ HUMAN ORGANIZATIONS

CONCEPT OF PRODUCTIVITY OR EFFICENCY

PRODUCTIVITY = OUTPUT/INPUT

PRODUCTIVITY = PRODUCED VALUE/CONSUMED VALUE

PRODUCTIVITY = QUALITY/COSTS

PRODUCTIVITY = EARNINGS/COSTS

# OVERVIEW ON QUALITY CONCEPTS AND HUMAN FACTORS

→ HUMAN ORGANIZATIONS

**IMPROVING**  
"HARDWARE"

**IMPROVING**  
"SOFTWARE"

**HOW TO IMPROVE  
PRODUCTIVITY  
OR EFFICENCY?**

**IMPROVING**  
"HUMANWARE"



# OVERVIEW ON QUALITY CONCEPTS AND HUMAN FACTORS

## → HUMAN ORGANIZATIONS

**IMPROVING**  
“HARDWARE”

**INVESTMENTS (ARE THERE AVAILABLE RESOURCES?)**

**IMPROVING**  
“SOFTWARE”

**ONLY WAY, IMPROVING PEOPLE. FURTHERMORE, IT DEPENDS ON THE “HUMANWARE” DEVELOPMENT**

**IMPROVING**  
“HUMANWARE”

**INCORPORATION OF KNOWLEDGE**

# OVERVIEW ON QUALITY CONCEPTS AND HUMAN FACTORS

→ QUALITY CONCEPTS/QUALITY ASSURANCE

WHY DO COMPANIES/AGENCIES EXIST?

TO ATTEND THE CLIENTS

FURTHERMORE

CONTINUOUS SEARCH FOR QUALITY & CLIENT NEEDS

# OVERVIEW ON QUALITY CONCEPTS AND HUMAN FACTORS

→ QUALITY CONCEPTS/QUALITY ASSURANCE

**NEEDS CHANGE**

**MUST LOOK FOR BETTER, SAFER & RAPID SERVICES/PRODUCTS**

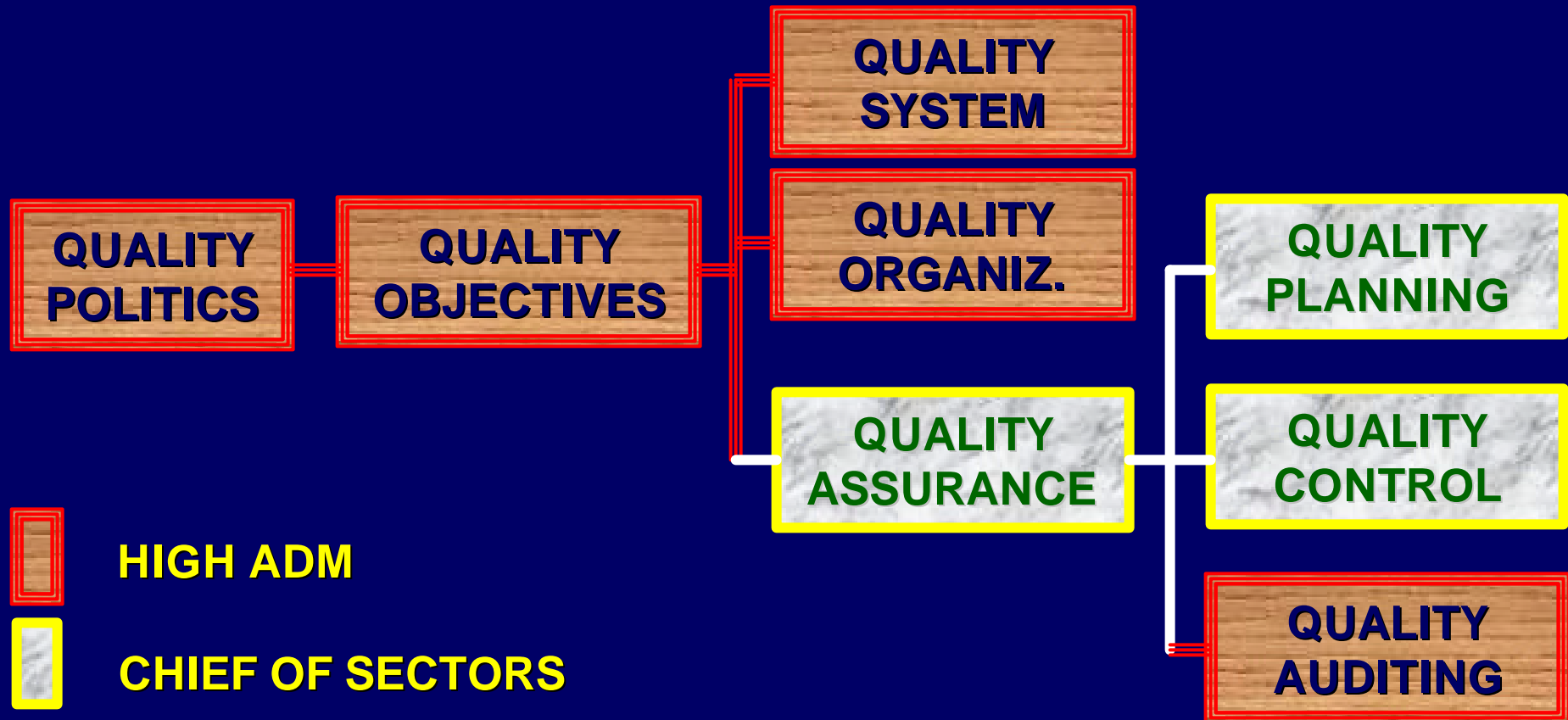
**HOW TO OBTAIN THIS?**

**QUALITY ADMINISTRATION PROCESS**



# OVERVIEW ON QUALITY CONCEPTS AND HUMAN FACTORS

→ QUALITY CONCEPTS/QUALITY ASSURANCE



# OVERVIEW ON QUALITY CONCEPTS AND HUMAN FACTORS

→ QUALITY CONCEPTS/QUALITY ASSURANCE

**QUALITY POLITICS**



**MUST CLEARLY ESTABLISH COMMITMENT OF HIGH ADM**

**ESTABLISH GOALS TO REACH THE CLIENT NEEDS**

**ENTIRE PRODUCT/SERVICE LIFE CYCLE**

**GUARANTEE USER SAFETY**

**EVERYBODY'S PARTICIPATION**

# OVERVIEW ON QUALITY CONCEPTS AND HUMAN FACTORS

→ QUALITY CONCEPTS/QUALITY ASSURANCE

**QUALITY  
OBJECTIVES**

```
graph TD; A[QUALITY OBJECTIVES] --> B[ESTABLISHED BY THE HIGH ADM IN ACCORDANCE WITH THE QUALITY POLITICS];
```

**ESTABLISHED BY THE HIGH ADM  
IN ACCORDANCE WITH THE  
QUALITY POLITICS**

# OVERVIEW ON QUALITY CONCEPTS AND HUMAN FACTORS

→ QUALITY CONCEPTS/QUALITY ASSURANCE



# OVERVIEW ON QUALITY CONCEPTS AND HUMAN FACTORS

→ QUALITY CONCEPTS/QUALITY ASSURANCE

**QUALITY SYSTEM**

**TO WORK WELL, HIGH ADM SHOULD DEFINE**

**AUTHORITY**

**CHAIN OF COMMAND**

**RESPONSIBILITY**

# OVERVIEW ON QUALITY CONCEPTS AND HUMAN FACTORS

→ QUALITY CONCEPTS/QUALITY ASSURANCE

**QUALITY  
SYSTEM**

**TO WORK WELL, MANAGERS  
SHOULD DEFINE**

**WORKING AREA STANDARDS**

**OPERATOR EDUCATION & TRAINING TO  
UNDERSTAND THE STANDARDS**

**ANNUAL PLAN FOR IMPROVING THE MANGEMENT  
(FUTURE VISION)**

# OVERVIEW ON QUALITY CONCEPTS AND HUMAN FACTORS

→ QUALITY CONCEPTS/QUALITY ASSURANCE

**QUALITY  
ASSURANCE**

**ITS OBJECTIVE IS TO CONFIRM IF ALL THE  
QUALITY ACTIVITIES ARE BEING  
CONDUCTED AS PLANNED**

**ADVANCED STAGE OF A COMPANY/  
/AGENCY THAT HAS PRACTICED  
EFFECTIVE QUALITY CONTROL IN  
ALL THE PROJECTS/PROCESSES**

# OVERVIEW ON QUALITY CONCEPTS AND HUMAN FACTORS

→ QUALITY CONCEPTS/QUALITY ASSURANCE

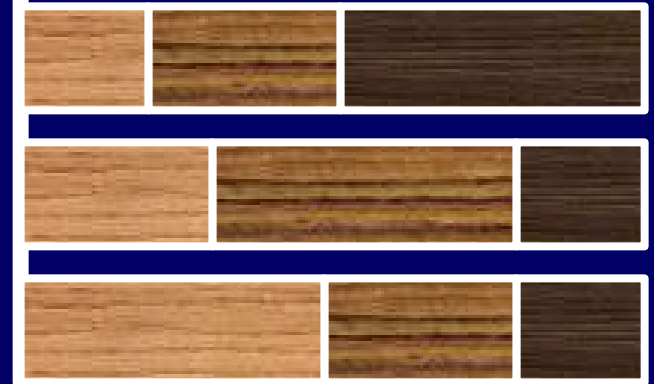
QUALITY ASSURANCE

PHASES/ EVOLUTION

INSPECTION

PROCESS CONTROL

NEW PRODUCTS/PROCEDURES & CLIENT NEEDS



ORIENTED BY

# OVERVIEW ON QUALITY CONCEPTS AND HUMAN FACTORS

→ QUALITY CONCEPTS/QUALITY ASSURANCE

**QUALITY  
PLANNING**

**QUALITY FOR  
EACH PHASE**

**GOALS**

**FUTURE  
VISION**

**NEW TECHNOL.,  
MATERIALS,  
PROC., EQUIP.**

**OPERATOR  
HABILITY**

# OVERVIEW ON QUALITY CONCEPTS AND HUMAN FACTORS

→ QUALITY CONCEPTS/QUALITY ASSURANCE

**QUALITY  
AUDITING**

**ACTIVITIES IN  
ACCORDANCE WITH  
THE OBJECTIVES OF  
THE QUALITY SYSTEM?**

**PRESENT SITUATION  
REACHES THE  
ADEQUATE LEVEL?**

# OVERVIEW ON QUALITY CONCEPTS AND HUMAN FACTORS

→ MANAGING HUMAN DEVELOPMENT



# OVERVIEW ON QUALITY CONCEPTS AND HUMAN FACTORS

## → MANAGING HUMAN DEVELOPMENT



# OVERVIEW ON QUALITY CONCEPTS AND HUMAN FACTORS

→ MANAGING HUMAN DEVELOPMENT

**COMPETITIVITY CONCEPT IN  
COMPANIES IS THE SAME FOR  
DIFFERENT STATES (ATS)**

**HIGH QUALITY SERVICES WITH LOW COSTS**

# OVERVIEW ON QUALITY CONCEPTS AND HUMAN FACTORS

→ MANAGING HUMAN DEVELOPMENT

**THE RESULTS OF  
YOUR WORK**

**MUST MEAN MUCH  
FOR YOUR LIFE**

**QUALITY IS  
BASICALLY**

**EDUCATION &  
TRAINING**

# OVERVIEW ON QUALITY CONCEPTS AND HUMAN FACTORS

→ MANAGING HUMAN DEVELOPMENT

**COMPANIES OR  
ORGANIZATIONS**

**TO SATISFY THE  
HUMAN NEEDS**

**EDUCATION**

**TRAINING**

**DOING**



# OVERVIEW ON QUALITY CONCEPTS AND HUMAN FACTORS

→ MANAGING HUMAN DEVELOPMENT

SATISFACTION

MORALE

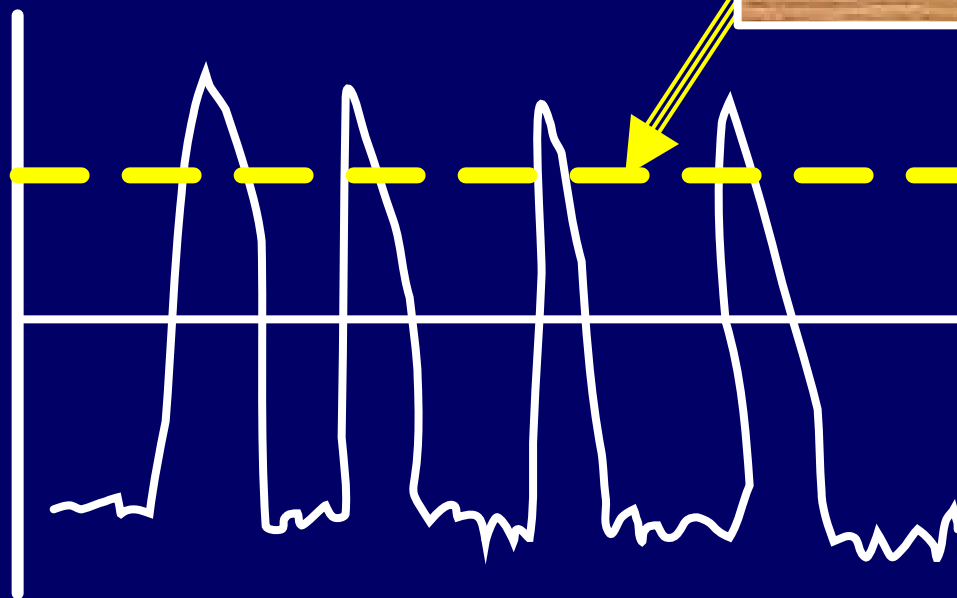
MENTAL HEALTH STATE

BASIC NEEDS ATTENDED

BASIC NEEDS NOT ATTEN.

NO SATISFACTION

ADEQ. FOR MENTAL PATHOLOGIES



# OVERVIEW ON QUALITY CONCEPTS AND HUMAN FACTORS

→ MANAGING HUMAN DEVELOPMENT

**HIGH  
MORALE**

**STATE OF  
MENTAL  
HEALTH**

**SATISFACTION  
MORE  
FREQUENTLY**

**BASIC NEED  
ATTENDED**



# OVERVIEW ON QUALITY CONCEPTS AND HUMAN FACTORS

→ MANAGING HUMAN DEVELOPMENT

ONE PERSON MAY BE SATISFIED  
TODAY, BUT NOT TOMORROW

FURTHERMORE

MEASUREMENTS SHOULD REFLECT  
THE GROUP AVERAGE

# OVERVIEW ON QUALITY CONCEPTS AND HUMAN FACTORS

## → MANAGING HUMAN DEVELOPMENT

IN TOTAL QUALITY CONTROL, THE  
CHIEF SHOULD CONTROL THE  
MORALE OF THE TEAM

HOW TO  
MEASURE THE  
MORALE LEVEL?

VISIT TO  
DOCTORS  
COMPLAINS  
SUGGESTIONS

# OVERVIEW ON QUALITY CONCEPTS AND HUMAN FACTORS

## → MANAGING HUMAN DEVELOPMENT

CHIEF MUST CREATE  
ENVIRONMENT WHERE  
EVERYBODY WANTS TO BE IN

CHIEF TAKES CARE FOR  
ACOMPLILSHMENT OF THE  
TEAM BASIC NEEDS

IT KEEPS  
HIGH  
MORALE

# OVERVIEW ON QUALITY CONCEPTS AND HUMAN FACTORS

→ MANAGING HUMAN DEVELOPMENT

**MOTIVATION**

**NOT BY  
CAMPAIGNS**

**BASED ON  
CONTINUOUS  
MORALE  
CONSTRUCTION**

**CHIEF MANAGE,  
MEASURE &  
CONTROL  
MORALE**

# OVERVIEW ON QUALITY CONCEPTS AND HUMAN FACTORS

→ MANAGING HUMAN DEVELOPMENT

**HUMAN  
DEVELOPMENT**



**SCALE OF BASIC HUMAN NEEDS (MASLOW)**

# OVERVIEW ON QUALITY CONCEPTS AND HUMAN FACTORS

→ MANAGING HUMAN DEVELOPMENT

## SCALE OF BASIC HUMAN NEEDS (MASLOW)

**SELF ACHIV**

OWN POT REAL, SELF DEVEL, CREAT, SELF-EXPR.

**SELF ESTEEM**

**SELF CONFICENCE, INDEPEN., REPUT.**

**SOCIALS**

**ACCEPT. FEEL, PART OF GROUP, FRIEND.**

**SAFETY**

**FAMILY PROTECT., HOME & JOB STABIL.**

**PHYSIOLOGICAL**

**LIVING, CLOTHING, FOOD, ETC**

# OVERVIEW ON QUALITY CONCEPTS AND HUMAN FACTORS

→ MANAGING HUMAN DEVELOPMENT

**HUMAN FACTOR**

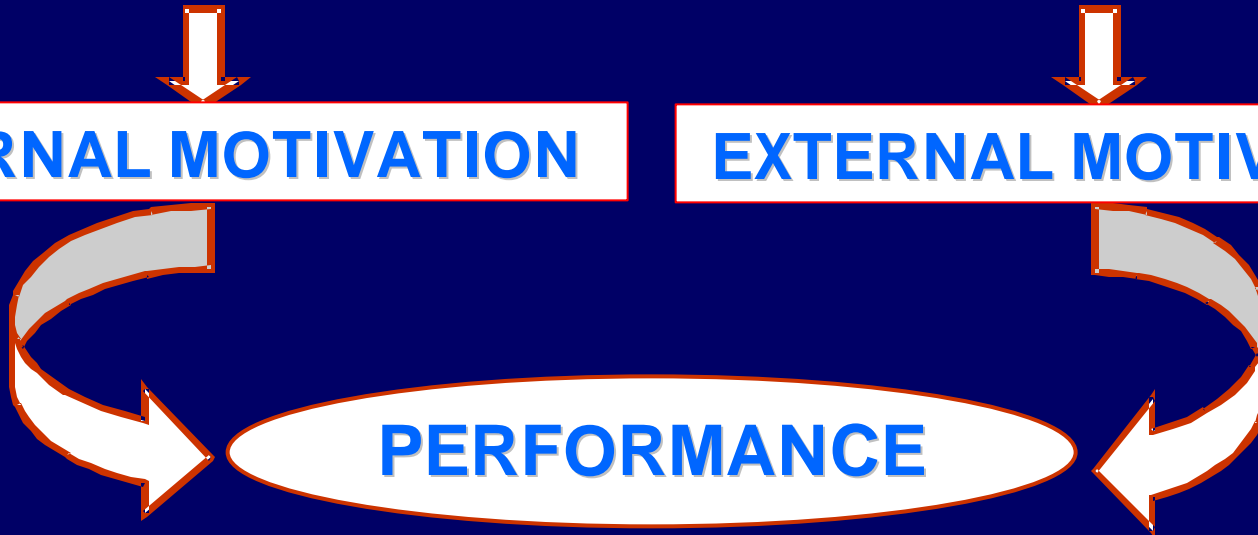
**PERSON**

**SITUATION/ENVIRONMENT**

**INTERNAL MOTIVATION**

**EXTERNAL MOTIVATION**

**PERFORMANCE**



# OVERVIEW ON QUALITY CONCEPTS AND HUMAN FACTORS

→ MANAGING HUMAN DEVELOPMENT

**HUMAN FACTORS**

**LACK OF ALERTNESS**

**YOUR MEMORY (NO THRUST)**

**COMMUNIC. PROCESS**

**STRESS, FATIGUE, ETC**

**STANDARD PROCEDURES**

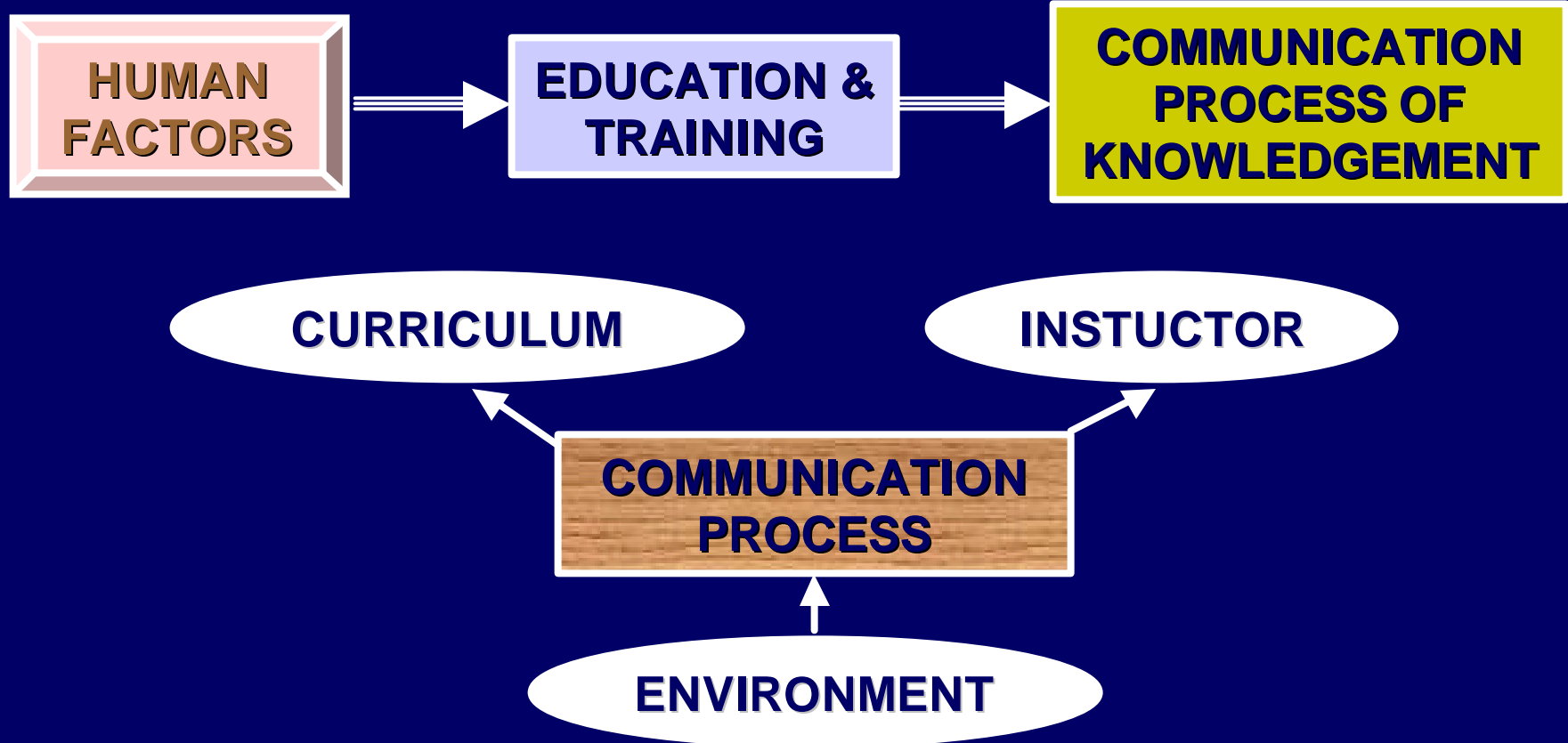
**GOOD HEALTH**

**CHECKING INFORMATION**

**CHECKING EQUIPMENTS**

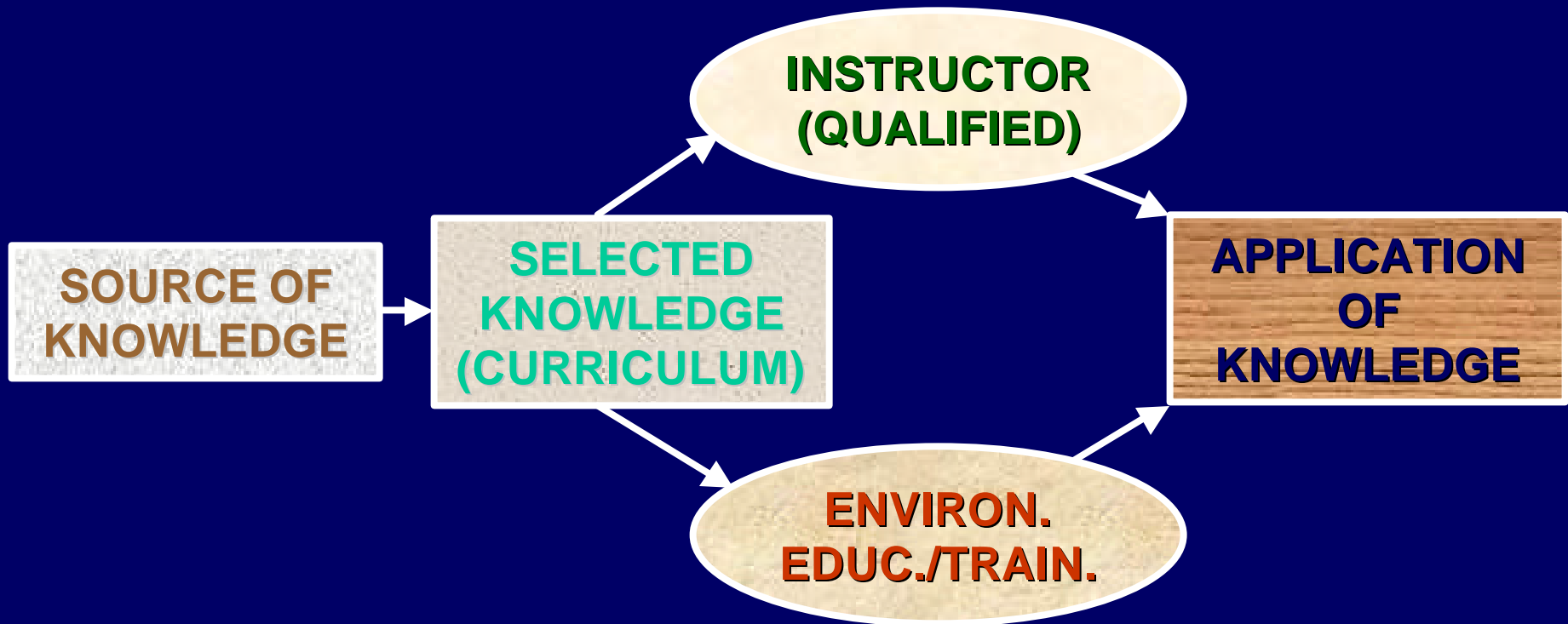
# OVERVIEW ON QUALITY CONCEPTS AND HUMAN FACTORS

→ MANAGING HUMAN DEVELOPMENT



# OVERVIEW ON QUALITY CONCEPTS AND HUMAN FACTORS

→ MANAGING HUMAN DEVELOPMENT



**KNOWLEDGE COMMUNICATION PROCESS**

# OVERVIEW ON QUALITY CONCEPTS AND HUMAN FACTORS

→ CONCLUSIONS