Module 1 :

Nature of Chronic Losses

The Problem of Chronic Loss

Why does chronic losses persist ?

- **Failure to understand the nature of chronic loss**
- **Using ineffective approaches in dealing with chronic losses**

Chronic vs Sporadic Losses

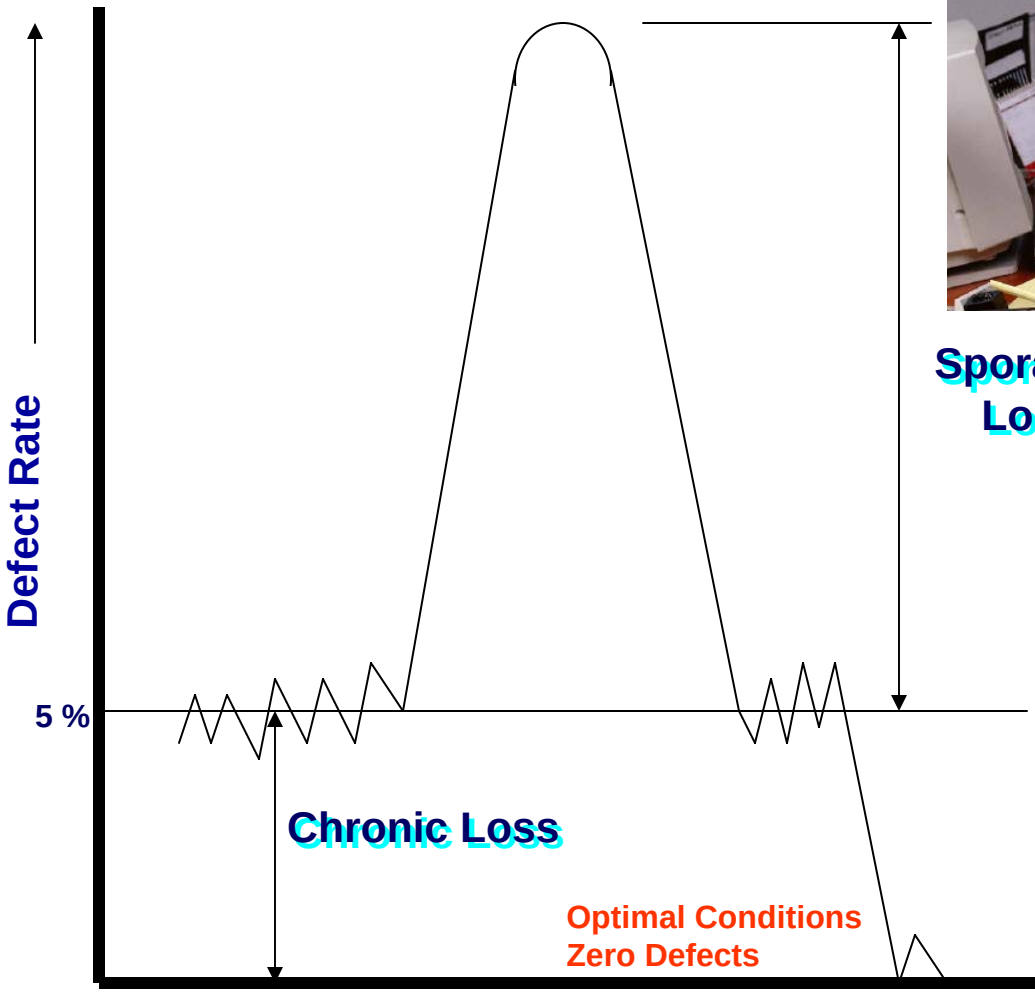
Sporadic

- Indicate sudden often large deviations from the norm
- They result from a single cause that is relatively easy to identify
- Since rootcause is often a single cause corrective measures are easy to formulate and easy to correct

Chronic vs Sporadic Losses

	SPORADIC	CHRONIC
Characteristic	• Occur suddenly and infrequently , large deviations from the norm	• Smaller , frequent deviation, resist variety of corrective measures • Includes 1- 5%of the problem
Cause	• Single cause, problem is easy to identify	• Complex, tangled cause and effect relationship, difficult both to identify causes and clarify effect.
Countermeasure	• Restore to return to its previous level	• Requires innovative break through measures, that restore the mechanism or component to its original, defect-free state.
Approach	• Cause and Effect • Pareto Diagram	• P-M Analysis

Chronic vs Sporadic Losses



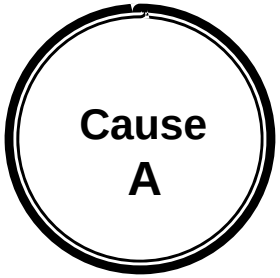
Sporadic Loss

- Requires restoration to return to previous level
- Large deviations from the norm

- Required innovation (corrective and improvement measures) to lower down the chronic loss rate
- Chronic losses become obvious when compared with optimal conditions

The Nature of Chronic Loss

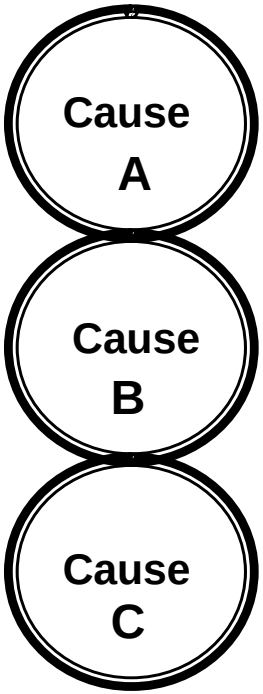
Case 1



A bearing seizes due to wear and tear. Bearing was replaced and problem was solved

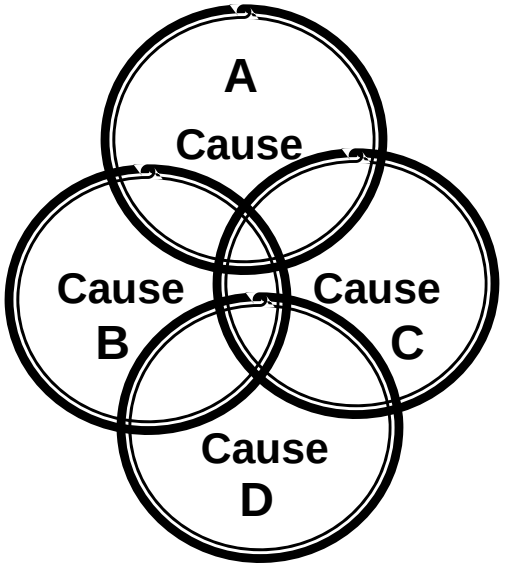
Single Cause Sporadic Loss

Case 2



One of multiple varying cause

Case 3



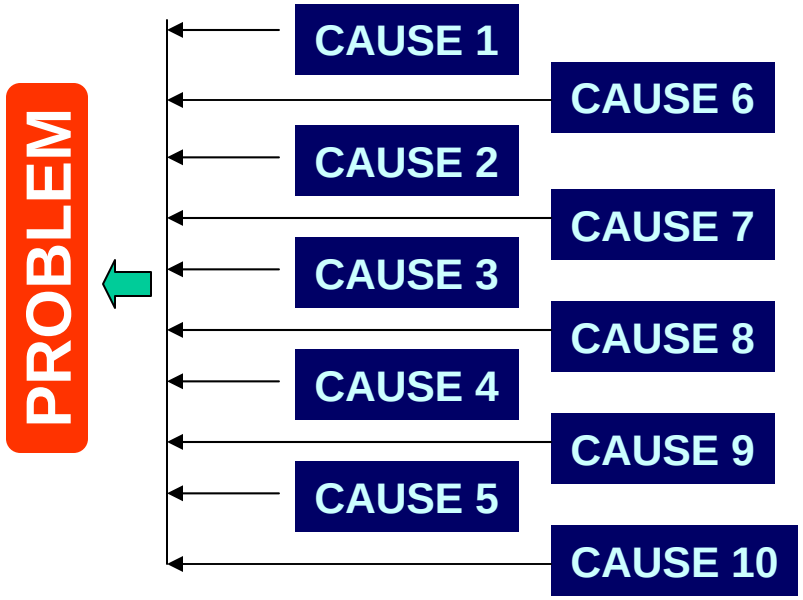
Each time the problem occurs a different combination of causes. Today it may be cause A, B tomorrow A, C, G and H

Varying complex combinations

Difficulty in pinpointing causes

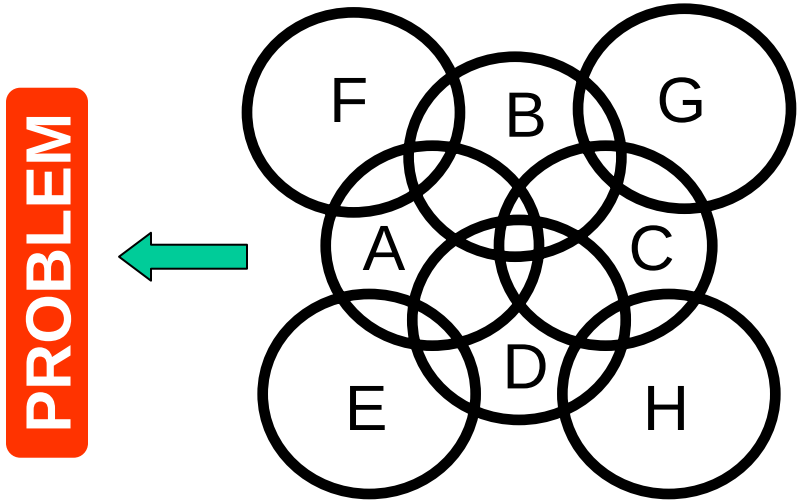
Even when measures taken against a single targeted cause are effective, the improvement is often temporary, hence the problem will resurface since we failed to eliminate the cause

Dealing With Chronic Loss



- A given problem with 10 potential causes , 1 to 10
- Each time the problem occurs, the cause is different
- Measure focused only 1 specific cause, cannot control the problem
- Today problem is caused by 1, 2, 3
  2nd shift is caused by 7, 8 and 10

How do you deal with this type of problem ?



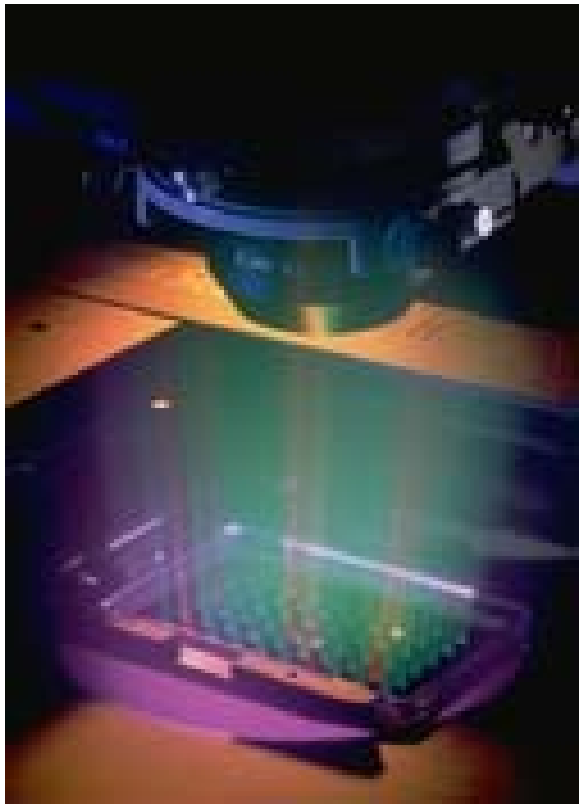
Varying Combination of Losses

- Identify all factors that contribute to a loss
- Thoroughly investigate each factor
- Eliminate any malfunctions or sub-optimal conditions discovered in the process

Rolly Angeles

Why Chronic Losses Persists :

- ***Phenomena are insufficiently stratified and analyzed***
  - Defects and failures are not carefully observed and stratified
  - People do not notice the defect pattern (how), elements (where) periods (when)
- ***Some factors related to phenomena are overlooked***
  - Potential causes are overlooked and uncontrolled
  - Uncontrolled factors can easily lead to Chronic Losses
- ***Hidden abnormalities in individual factors are not addressed***
  - Failing to identify and respond to abnormal conditions
  - People are more alert to large problems since they appear more significant and the smaller the problem the more likely they are to be ignored
  - Slight abnormalities includes dirt, rust, vibration, loose-ness, slightly wear, dirty contact

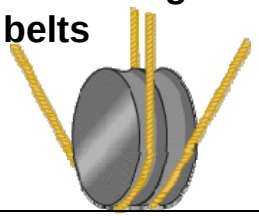


Phenomenon - the physical event or precisely what happens to produce the defect in question. This is the abnormal event to be controlled

Optimal Conditions :

- ***A thorough elimination of slight abnormalities is a prerequisite for achieving zero defects and breakdowns***

OPTIMAL = Necessary + Desirable

Mechanism	Necessary	Desirable
Pulley arrangement accommodating all three belts 	• At least one V-Belt must be installed for correct operation	• All 3 V-Belts should be installed for operation • All 3 V-Belts should have equal tension • The belts should be free of cracks & grease • Pulley should be free of abrasion • The motor and speed reducer should be aligned properly at all times
Grease supply 	• Grease must be supplied at specific locations	• Grease nipple should be kept clean • Area around the grease fitting should be wiped clean after each application • The condition and volume level of used lubricant should be checked constantly • Grease container should be kept clean • Used lubricant should be disposed of properly • The number of days for the lubricant to reach the end of piping should be estimated

Optimal Conditions :

- Represents equipment operating at its highest level - reliable maintainable performing to the full extent of its design capabilities. It is the sum of 2 categories namely necessary and desirable
- As good as new, it is what the equipment was designed and built

Necessary Conditions :

- Minimum requirement to support equipment conditions

Desirable Conditions :

- Desirable conditions are not essential for operation but they are needed to prevent breakdown and defects