

## **Introduction to GEMBA (continued from last issue)**

### **Gemba Reveals Waste**

Let's step back for a moment and consider how gemba, a concept that comes from lean manufacturing, relates to other lean ideas. Lean aims to identify and eliminate waste from work processes, ultimately making operations more efficient and less costly.

#### **Waste: Lean**

Gemba walks fit in well with this mindset, since they are a helpful tool that managers can use to identify waste in the workplace. Lean focuses on reducing certain types of waste such as over-production, time spent waiting, defects, and unnecessary motion (see a complete list on the next page). Not all gemba walks must focus on waste, but they can if that will be useful for you.

#### **Waste: Muda, Mura, Muri**

The concepts of muda, mura, and muri are another lens through which you can look for waste in your facility while on a gemba walk. These terms refer to specific types of imbalances that indicate there could be a problem with your processes. You want to have the right amount of workers handling the right amount of materials to make the appropriate amount of products to meet demand; muda, mura, and muri can help you achieve this.

#### **Kaizen**

Kaizen, a concept sometimes referred to as "continuous improvement," involves looking for small ways to change the workplace for the better. Kaizen can be used by employees in all levels of an organization and it creates a culture where employees feel comfortable suggesting change. As a manager, when you approach a gemba walk it's a good idea to do so with a kaizen mindset. Look for small changes that could help improve processes and be open to suggestions from employees.

#### **Your Lean Culture**

Gemba walks often help strengthen a workplace's lean culture. Workers see managers out in the workplace, they have an opportunity to discuss their work, and they feel valued. Employees that feel valued will likely perform higher quality work, which will end up creating a better end product for your customers.

#### **Lean Manufacturing**

Lean seeks to eliminate seven kinds of waste. These wastes can help you determine where efficiency could be improved. If a goal of your gemba walk is to identify waste, you might find this list helpful.

## **Over-production**

### **Definition:**

Producing more than the customer needs right now

### **Examples:**

- Producing product to stock based on sales forecasts
- Producing more to avoid set-ups
- Batch processing resulting in extra output

### **Causes:**

- Forecasting
- Long set-ups
- “Just-in-case” for breakdowns

### **Countermeasures:**

- Pull system scheduling
- Heijunka - level loading
- Set-up reduction
- TPM

## **Transportation**

### **Definition:**

Movement of product that does not add value

### **Examples:**

- Moving parts in and out of storage
- Moving materials from one workstation to another

### **Causes:**

- Batch production
- Push production
- Storage
- Functional layout

### **Countermeasures:**

- Flow lines
- Pull system
- Value stream organizations
- Kanban

## **Motion**

### **Definition:**

Movement of people that does not add value

### **Examples:**

- Searching for parts, tools, prints, etc.
- Sorting through materials
- Reaching for tools
- Lifting boxes of parts

### **Causes:**

- Workplace disorganization
- Missing items
- Poor workstation design
- Unsafe work area

### **Countermeasures:**

- 5S
- Point of use storage
- Water spider
- One-piece flow

### **Waiting**

#### **Definition:**

Idle time created when material, information, people, or equipment is not ready

#### **Examples:**

- Waiting for parts
- Waiting for prints
- Waiting for inspection
- Waiting for machines
- Waiting for information
- Waiting for machine repair

#### **Causes:**

- Push production
- Work imbalance
- Centralized inspection
- Order entry delays
- Lack of priority
- Lack of communication

#### **Countermeasures:**

- Downstream pull
- Takt time production
- In-process gauging
- Jidoka
- Office kaizen
- TPM

## Processing

### Definition:

Effort that adds no value from the customer's viewpoint

### Examples:

- Multiple cleaning of parts
- Paperwork
- Over-tight tolerances
- Awkward tool or part design

### Causes:

- Delay between processing
- Push system
- Customer voice not understood
- Designs "thrown over the wall"

### Countermeasures:

- Flow lines
- One-piece pull
- Office kaizen
- Lean design

## Inventory

### Definition:

More materials, parts, or products

### Examples:

- Raw materials
- Work in progress
- Consumable supplies
- Purchased components

### Causes:

- Supplier lead-times
- Lack of flow
- Long set-ups
- Long lead-times
- Paperwork in process
- Lack of ordering process

### Countermeasures:

- External kanban
- Supplier development
- One-piece flow lines
- Set-up reduction
- Internal kanban

## Defects

### Definition:

Work that contains errors, rework, mistakes, or lacks something necessary

### Examples:

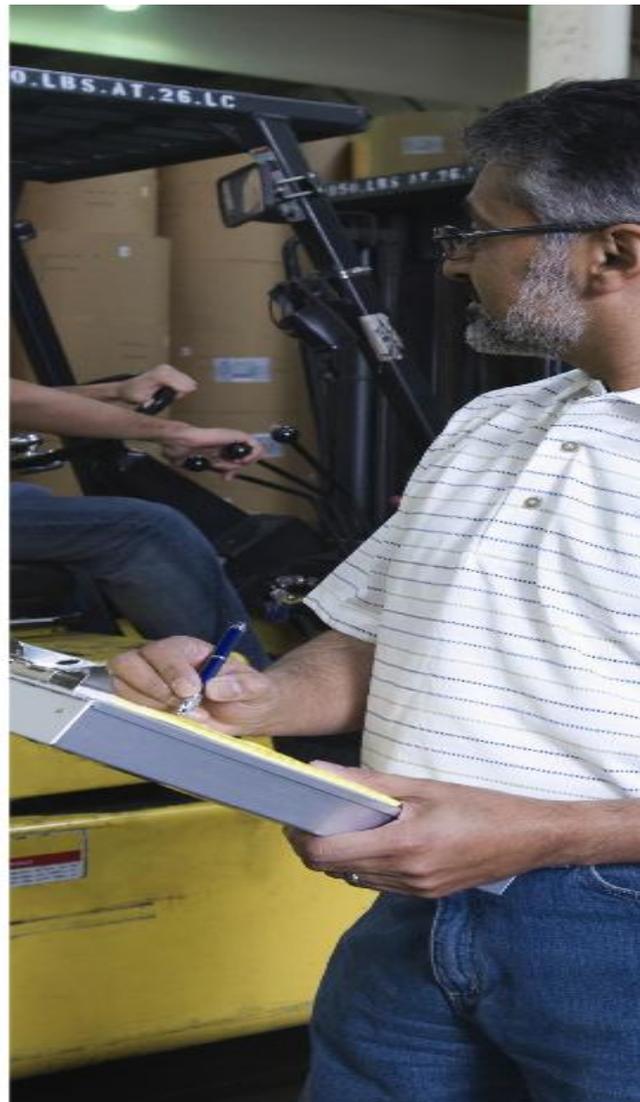
- Scrap
- Rework
- Defects
- Correction
- Field failure
- Variation
- Missing parts

### Causes:

- Process failure
- Mis-loaded part
- Batch process
- Inspection quality
- Incapable machines

### Countermeasures:

- Poka-yoke
- One-piece pull
- Built-in quality
- 3P
- Jidoka



### The 3 M's: Muda, Mura, Muri

Identifying waste using the 3 M's can help you more easily set goals and create conditions that avoid unnecessary repetition of efforts (muda), unevenness of those efforts (mura), or efforts that cause strain (muri).

By focusing improvement activities on eliminating the non-value-adding parts of the production process, balance between capacity and load can be achieved.

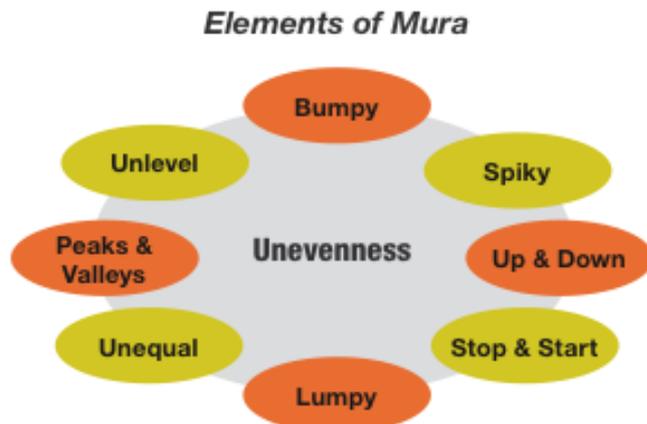
Muda refers to waste in the most basic sense: any activity that doesn't add value. Consult the 7 wastes of lean mentioned previously to identify muda in your facility.

The concepts of mura and muri warrant a little more explanation. Let's take a closer look.

## Mura - Unevenness in process or production

Mura occurs because of wasteful allocations of materials or people. For example, employees might be directed to work intensely during the morning shift, which results in a lack of work to do in the afternoon.

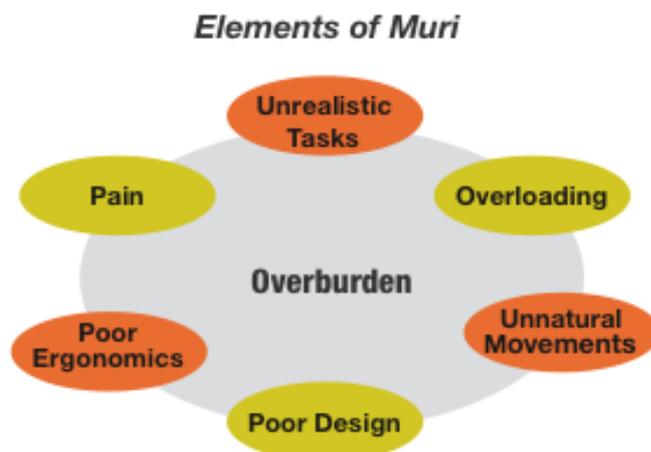
This start-speed up-stop scenario can be unhealthy for both workers and machines and can lead to unnecessary fatigue, stress, breakdowns, and accidents.



## Muri - Overburden of Assets

Muri is the consistent overburden of equipment, facilities, and people. Muri pushes machines or people beyond their natural limits, causing fatigue and stress and increasing the likelihood of an accident.

Overburdening equipment can also lead to breakdowns and increased defects, which results in wasted materials and products.



## Ask yourself...

When you head out on a gemba walk, keeping muda, mura, and muri in mind can provide a useful starting point for looking at your operations. The questions below can help you determine whether these wastes and misuses of resources are present in your facility.

## What Is Creating Waste (Muda)?

### Look for and identify:

- Poorly defined or unnecessary activities
- The 7 types of waste
- Damaged tools or machinery

## What Is Creating Unevenness (Mura)?

### Look for and identify:

- Inconsistent output
- Fluctuations in quality
- Stop / Go process

## What Is Creating Strain (Muri)?

### Look for and identify:

- Overburdened workers
- Overburdened machinery
- Unbalanced work loads

## Poor Visibility = Poor Process and Outcome

### Look for and identify:

- Poorly defined directions
- Confusing signals
- Metrics that are not easy to read or understand

## Kaizen

Kaizen relies on non-dramatic, long-lasting changes to continually improve the workplace. It is a daily effort made by managers and workers alike. Kaizen typically doesn't cost much money to implement and practice, but because it is used throughout all levels of an organization, it does take time and training.

Managers who take gemba walks can keep the idea behind kaizen - seek small improvements - in mind while observing. Small changes can add up and result in a significantly stronger process.

Part of the kaizen culture involves transferring improvement efforts from management (who traditionally tell workers what to change) to all workers. This ties in well with the dialogue portion of a gemba walk. Managers can ask workers what ideas they have to solve problems, and if workers are already familiar with kaizen, they will likely have some suggestions in mind.

## Summary

### Recap: Why Gemba?

- See firsthand what is happening
- Help create standard work practices and ensure they are effective
- Hear from employees about what is important to them and what problems they see
- Emphasize values, quality, and safety
- Align departments and teams with the organization's overall goals
- Focus on purpose, process, and people

By taking you to "the real place" where the work is performed, a gemba walk can

reveal many things about your business that you might not have otherwise discovered.

Gemba walks allow you to observe any process and they can even be broken down into smaller walks, allowing managers to focus on particular parts of the value-creation process. These walks can help bring inefficiencies and other problems to light that do not add value to the end products you sell to your customers.

Unbiased observation is necessary for a successful gemba walk, and observing in this manner is a skill that is developed over time. New practitioners of the gemba walk should reflect on their experiences after each walk; with time, they will become even more adept observers.

During your walks, remember to focus on not only the process you're examining, but also the purpose of the process and the people involved in it. Ask questions, consider activities from all angles, and listen to workers' own observations about the work being performed.

Although you should make note of problems you see, don't jump in and try to fix them immediately. Doing so can alienate your workers and make them feel like they're being blamed for a problem. Instead, ask workers for input and then consider what viable solutions to the problems you could implement.

Gemba walks are a lean tool that can ultimately increase value and improve your company's lean culture. Prepare for your own walk, and then head out into the workplace to get started.

**Concluded**

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