Wind Mill Installation Time Slashed

Background

Our client had taken up a project for installing 100+ windmills in two different sites. The project was running behind the schedule with significant cost implications and the Project director called upon KIAP to help them complete the project on time. KIAP had a preliminary discussion with the client and laid out the following goals for the project team.

1. Double the productivity.
2. Develop a rhythm in the process so that work is less stressful.
3. Reduce the waste by improving planning and synchronization – reduce cost of erection.

Our Approach

We decided to work with an erection team in one site to achieve desired improvements – in terms of quality, time, asset and other resources utilization, cost. The team would capture the learning and develop a road map for deployment in other sites. Though no two sites are same, look for similarities for standardization, build robustness in the process to handle the variations and deviation drivers.

Observations

KIAP experts guided the team through a detailed observation exercise of the current process (flow depicted below) under lean paradigms.

The key issues identified are listed below.

- With current resources (cranes and trailers), less than one wind mill is erected per day while the planned throughput time per tower –is 17 to 18 days
- Lack of adequate planning of work and material placement at actual site
- Significant waiting of main cranes, which increased the cost of erection.
- Civil work is done in parallel and is not a constraint
- Key bottleneck process is the crane operations – currently it takes 4 to 5 days to prepare as against actual erection (value adding) time of only 6-8 hours per tower

- Different functions and agencies work as isolated islands (poor synchronization) and there is significant *Muda* (waste) in the work practices at the site

Improvements Done

1. Changed paradigm from "project management" to "manufacturing" so that lean manufacturing principles can be deployed.
2. Worked to the TAKT of 2 Towers a day – with existing resources; improved bottleneck operation of crane
3. Optimization of resources
    a. Reducing number of trips to site
    b. Using right sized lifting and shifting equipment
    c. Use of proper tools and tackles
    d. Minimizing crane re-positioning
4. Standardized the process through 5 S, SMED, etc. at site
5. Implemented 5 S & Visual Management to improve flow and reduce cost.
6. Synchronized material supplies – for effective utilization of trailers and trucks and reduce throughput time.
7. Developed internal team to deploy the new practices horizontally across the company – at other farms.

Benefits Realised

1. **Doubled the erection rate to 2 towers per day** from earlier rate of 1 tower per day.
2. T**hroughput time reduced from 17-18 days per tower to less than 5 days per tower.**
3. Stress-free working at the site – this will have an effect on the attrition rate at the sites.
4. Integration of supply chain for cost optimization and reduction in cost – mainly that of trailers and cranes
5. Sowing the seeds for continual improvement to become a culture in the organization
6. Breaking the functional barriers at the operational levels and Change in the mind set from "project" to "Product"