

## PORR-SBG-HBK

### Reducing Construction Costs



In June 2013, the joint venture of PORR Group, Saudi BinLadin Group and HBK Contracting Company (PSH) was awarded with the Design and Construction of the Doha Metro Green Line Underground, scheduled for completion by 2019. The Project involves the construction of 33 km of tunnels, six underground stations and eight ancillary structures.

“Our concrete production and overall productivity saw an upward trend as a result of this intervention.”

**Ramzi Nawfal,**  
*Executive Committee Member*

#### Key Results

Overall 4-week running rate of well over 100% improvement over base productivity, versus a target of 35%

Concrete activities achieved well over 130% improvement over base productivity against the same target

Financial benefits to PSH in excess of QAR 40 million

#### PROJECT GENESIS

PSH initiated a Renoir operational improvement project in order to improve productivity and control direct manpower costs across its construction sites for the Doha Metro Green Line Underground Project. The overall aim was to generate significant savings from construction costs.

#### PROJECT APPROACH

Renoir assembled a joint team consisting of consultants along with client task force. A steering group of Renoir and client management was formed to oversee progress. Bi-weekly steering group meetings were held to ensure that the project remained on track and achieved the initial project plan. All changes and system elements involved the stakeholders to ensure a high level of ownership and sustainability.

Renoir also assembled Management Action Teams (MATs) whose role was to identify issues and root causes, assess impact, develop solutions and implement them. Extensive management and supervision training along with constant follow up, on-going coaching, and positive reinforcement continued throughout the entire duration of the engagement.

Through multiple diagnostic studies and observations, the joint team identified many of the root causes for low productivity; namely gaps in the management controls coupled with lack of appropriate key performance indicators at the execution level, ineffective operational planning and lack of quantitative real time progress measures.

#### IMPLEMENTATION

The Project ran for a period of 50 weeks and had the following key elements:

- **Planning** – providing a discipline by discipline detailed planning process that disseminated down via Supervisors and Foremen to the point of execution. This provided a set of clear daily tracked deliverables, and therefore resulted in more productive work areas.
- **Resource Planning** – providing a process for accurately assessing manpower requirement and a requisition process based on realistic and quantified work volume (singular) forecasts..
- **Active Supervision** – by working closely with foremen, supervisors and engineers, supervisory practices were monitored and improved through training and coaching. Protocols based on Active Management Behaviour techniques were implemented to drive a more productive work site.

### World Leaders in Sustainable Change

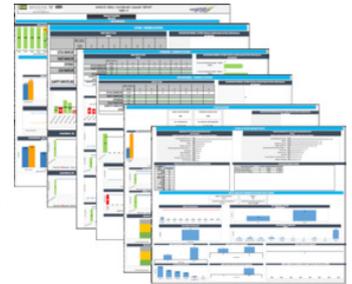
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“The level of details required in the daily reporting and weekly planning helped our people take responsibility and pay attention to the performance that was not there before.”

**Gilles Khachan,  
Stations Manager**

- **Target Rates** – relevant and accurate production rates were formulated and implemented, along with measurement of performance against those rates in order to relate directly to the enhanced level of active supervision and targets. In turn, this provided valuable feedback to operational planning and higher-level forecasting and project budgeting. In addition, stretch targets well above the base production rates were developed, agreed and implemented.
- Improved coordination and communication between different areas resulted in better alignment with construction priorities. Scarce resources, material, equipment and skills were optimised. This led to increased operational efficiency and ensured optimum alignment.

A critical step was implementing a daily measurement system of work completed by each supervisor. The Time & Quantity Report was developed and implemented which the foreman and engineer utilised to quantify the work completed along with the number of man-hours used. This allowed detailed definition of activities, the setting of a baseline, tracking of progress and objectively assessing the results of interventions.

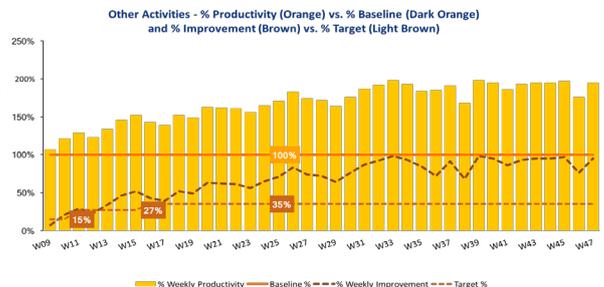
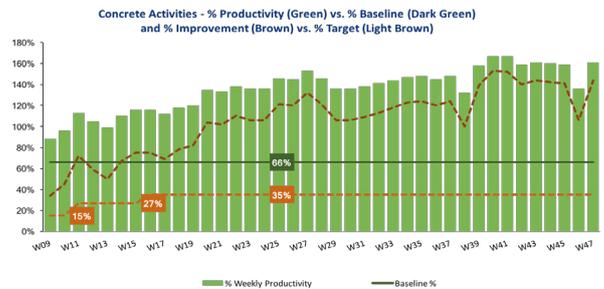


One of the important features of the assignment was the development and implementation of dashboards to provide visibility of production indicators at all sites. An overall (all stations) dashboard showed key performance indicators for the sites and these were reviewed centrally with all station managers, whilst station-based dashboards showed detailed key performance indicators that were reviewed at the station level.

A recognition process for over-achieving foremen that fostered competition and enthusiasm was implemented. Weekly and monthly Foreman League Tables were produced and publicised across all sites.

**RESULTS**

The target was an estimated improvement in direct labour productivity of at least 35% within the time frame of the project. Due to the great collaboration between PSH and Renoir, the project actually achieved a more than 100% increase in labour productivity, which resulted in considerable savings (against the baseline performance levels) to PSH.



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