Abstract

Van Oord Dredging and Marine Contractors is currently executing some of the most prestigious land reclaiming project in the world. In Dubai (UAE), Van Oord is finishing the Palm Jumeirah, building simultaneousl the World Island Project (WIP) and Deira Cornische Project (DCP) and will start the build of Palm Deira in the near future. Protection of these reclamation works is achieved by building breakwaters and quay reinforcements, made of rock.
The transportation cycle of rock is being managed by the Rock Transport office in Ras Al Khaimah. Main function of this office is to plan the transportation cycle; loading, sailing full, discharging and sailing empty of rock barges.
The planning of rock barges is coordinated by one person, with help of a Excel file and personal experience. Making and updating the planning is a time intensive task and will be even more challenging when more production units are added to the cycle. Improvements can be made to the Excel planning tool, in order to make the program foolproof, future proof, time saving and user friendly.

Making the program foolproof, requires updating and debugging of the Excel file and attached Visual Basic macros.
To prepare the plan tool for future expansion of the production units, a new Visual Basic macro is introduced to allow the user to Add or Remove elements from the model. The new software will automatically update all necessary sheets that are involved with the addition or removal.
The time needed to make the planning can be reduced considerably by creating macros that plan automatically. Since human involvement can not be excluded from the model, a semi automatic planning is introduced. A new sheet is added to the Excel file to store all relevant historical information and times of barges; the Timesheet. Based on the Timesheet and the First In, First Out principle, maximally one activity per barge will be planned automatically. After possible alterations by the user, new activities can be planned by the program. When planning automatically, the program takes into account whether elements are added or removed from the model.
The new features and the clear interface make the program user friendly.

Data and syntax of the Excel and Visual Basic file were updated, resulting in less errors. The Add/Remove tool proved to be a useful addition to the model. The semi automatic plannning could not be completely finished, but is a promissing supplement to the program. The interface of the plan tool is self explaining and therefore usable for anyone.

It is recommended to finish and verify the semi automatic planning. Overall, the improvements introduced for the plan tool can be beneficial for the user. Nevertheless, making the planning becomes more difficult because of the many variables and production elements. This puts a big strain on the Rock Transport office, and thus on the WIP and DCP office. It has been an unique experience to live in a foreign country and to work on a large technical project.