



White Paper 2018-13

How to Rate the Remoteness of Project Sites

Some types of Large Complex Projects involve construction in remote areas that have low levels of pre-existing infrastructure. This can reach the point of having to include in the project scope to build some or all of the transportation, communication and accommodation infrastructure required for the project and/or the continuous operation of the facility. The challenges associated with these projects must be tackled specifically since the success of the project may lie as much in the successful delivery of these surrounding scopes as in the delivery of the core facility itself. In this first White Paper we describe how to rate the remoteness of project sites. In the next White Paper we describe to account for remoteness when planning for project execution

What is a remote site?

From the project perspective, a remote site is a site that does not benefit from pre-existing infrastructure commensurate with the intended construction activity, size or technology of the intended facility.

Beyond obvious issues such as site access, the availability of the relevant technology level is an essential parameter that needs to be considered. For example, the implementation of advanced technology, control and monitoring systems in a country that does not have the relevant competencies creates issues related to technology transfer and availability of local support that need to be addressed.

In addition, the time required to obtain missing or additional specific tooling, consumables or spares could also have a major impact on project execution.

Rating the remoteness of the project is the first essential step in identifying the difficulties that have to be taken into account when planning project execution

How to rate the remoteness of a project site

There are different grades of remote sites, depending on the distance to the closest resources and the difference between pre-existing infrastructure and what is intended. The following table intends to give a useful classification, based on 5 criteria:

- Availability of local resources to support the intended technology level (includes equipment and personnel competency),
- Site physical access with regard to the logistics of the equipment intended for the project,
- Site accessibility for personnel and accommodation capacity, based on the intended construction team size,
- Connection to the web and communication networks, as this capability is essential today,
- Availability of basic fluids and energy (power, water) and construction material.

Security might be a concern for specific locations but we do not believe it influences project execution as much as remoteness, as for remote locations with security issues accommodation needs to be organised accordingly.

Remoteness level	Description
Low	<ul style="list-style-type: none"> • Local resources to support the intended technology level are available in quality and capacity within 2 hours of site. • A specific site access must be built but there are sufficient access and logistics capacity within 2 hours / 50 km of the site • Pre-existing accommodation of sufficient capacity and quality exists within 1h / 50km of the site and there is no need to organise special air or ground connections to those accommodation for the intended construction team size. • Connection to the web and other communication networks can be done over fibre to a pre-existing connection point within a few km (e.g. along the access road) • Power, water and construction material are available by adding connection to the site
Moderate	<ul style="list-style-type: none"> • Local resources to support the intended technology level are available in quality and capacity but within several hours of site (more than 5-6 hours taking into account transportation constraints). • Access and logistics capacity requires special measures to be taken, as it requires targeted additional infrastructure to be built beyond site access (quay/bridge/road reinforcement, bridge by-pass etc) • Pre-existing accommodation within 1h / 50km of the site has insufficient capacity or quality to accommodate the intended construction team size. Additional transportation to the accommodation must be organised by the project for the construction team to accommodate the flow of workers. • Connection to the web and other communication networks is possible without satellite but requires substantial investment • Power, water and construction material are available but it requires substantial investment to connect to existing supply or requires moderately distant transportation

<p>High</p>	<ul style="list-style-type: none"> Local resources to support the intended technology level are not available in quality and capacity in the region/ country. Access to those resources is beyond 12h. Access and logistics require heavy new infrastructure investment (such as harbour pier, heavy duty road, railroad) outside the strict site access construction Accommodation must be built for the construction team as there is only limited availability within a reasonable range Connection to the web and other communication networks requires satellite solutions Power, water and construction supply must be created as part of the project
<p>Extreme</p>	<p>Similar to highly remote site, and in addition the climatic conditions are extreme which hinders the project execution or make it extremely season-sensitive</p>

How to rate the remoteness of brownfield projects

Brownfield projects benefit from the prior operational knowledge of the project location, but this is compensated by the additional complexity of brownfield work as to the interface with the existing organisation and facility.

For brownfield projects we assume that there is already an operating industrial site and the necessary support infrastructure. Therefore, basic power and water supply, as well as communications infrastructure will already be available.

Issues that need to be considered when rating the remoteness of a brownfield project will include:

- The capacity of the existing infrastructure to serve the needs of the existing facility as well as the brownfield project and eventually the new operating facility,
- The size of the construction team compared to the normal size of the exploitation team, and whether

It is perfectly possible that a brownfield project need to be considered as a highly remote project

personnel logistics and accommodation need to be substantially upgraded temporarily for the project,

- The technology level of the new infrastructure compared to the existing, and whether support of the new technology is easily available in the region,
- The logistical challenges associated with the particular major equipment and materials that need to be brought on site for the project.

Hence, it is perfectly possible that a brownfield project need to be considered as a highly remote project if the plant extension is very substantial, requiring substantial additional personnel logistics, involves a very different technology, and requires specific logistical investment to bring on site the equipment for the project.

Some examples of practical application of the remoteness scale

Offshore projects will typically be:

- Moderately remote when executed in coastal and near-coastal area in a region that has good quality infrastructure as well as well-equipped harbour access within 4 hours
- Highly remote for works beyond near-coastal area or in regions that do not have good quality basic onshore infrastructure
- Extreme for works in highly remote locations that are heavily weather and season-sensitive.

For onshore sites, access from the sea with the availability of suitable quay facilities is a factor that can be exploited to diminish the remoteness level, as it may greatly facilitate the logistics of personnel and material. It might also be easier to install underwater power and

communication connections than over ground.

Conclusion

Rating the remoteness of the project is the first step in identifying the difficulties that have to be taken into account when planning project execution. In the following White Paper we will develop how to deal with remote projects in terms of execution planning.



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