



# IDENTIFYING AND ADDRESSING THE CAUSES OF DELAY IN HYDROPOWER PROJECTS

Delay is a common problem in large construction works, and hydropower projects are no exception. Project delays are always costly to the developer, but all stakeholders can suffer broad economic and social costs when a project's benefits are delivered later than had been planned.

## THE IMPACT OF PROJECT DELAY

From an investor's point of view, unpredicted delay is a major project risk, particularly after debt financing has been finalised. Delays cut into a project's net present value due to deferred revenue and increased costs.

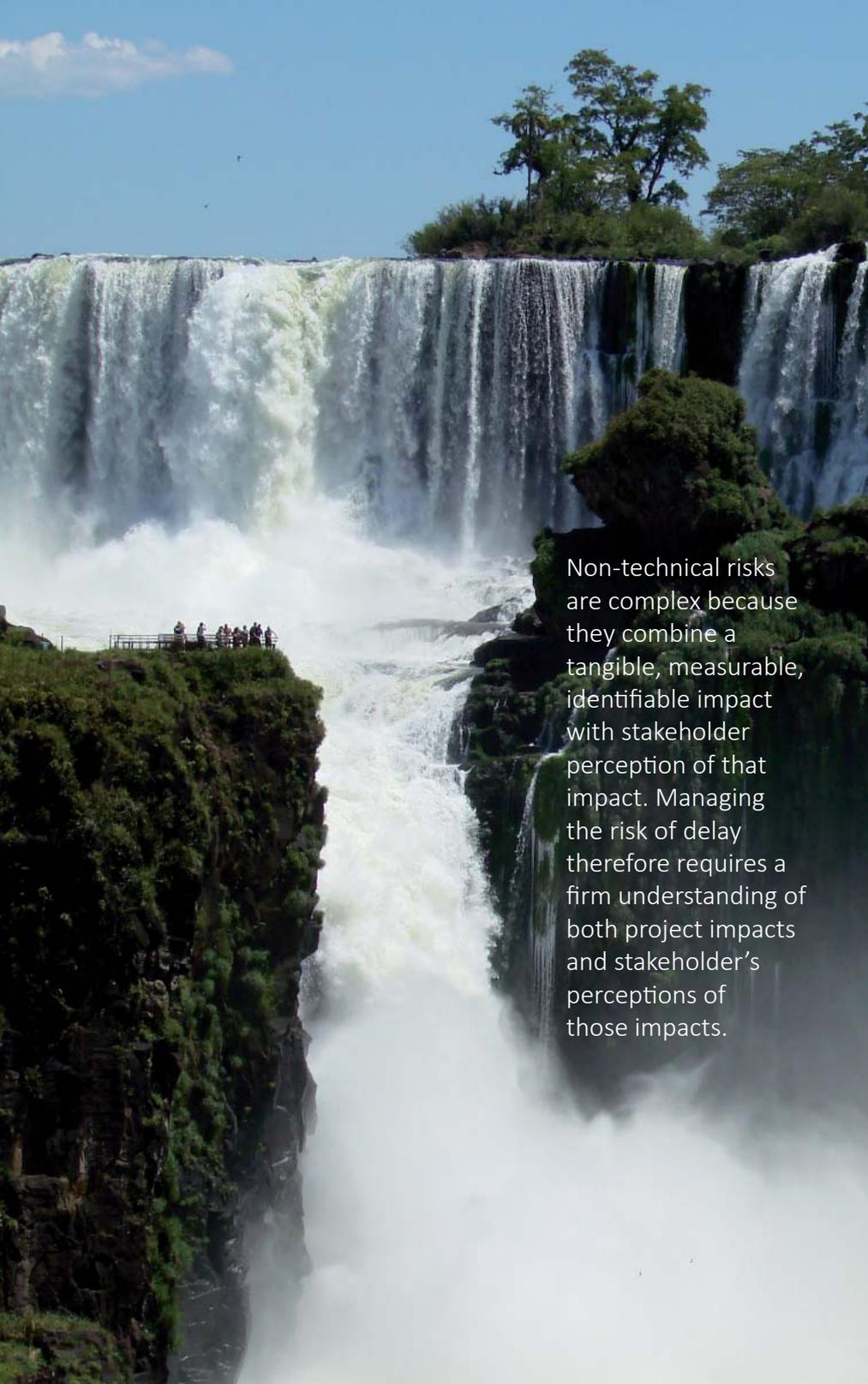
For example, the Bujagali hydropower project in Uganda took eighteen years to complete, facing a number of environmental, social and economic challenges. The cost of the project escalated from \$580 million at inception to \$902 million at completion (\$3.6 million per MW). Furthermore, an independent investigation by the Ugandan Parliamentary adhoc committee on energy estimated the dam's actual cost to be \$1.3 billion (\$5.2 million per MW or more).

Developers must also contend with a range of less tangible costs

caused by project delay. A widely publicised delay may damage a company's reputation. This can have a negative impact on revenue, staff retention and recruitment.

Moreover, failure to deliver projects on time may also make it harder for a company to secure contracts in the future, particularly if a competitor has proved that they can deliver projects more quickly and effectively.

Hydropower projects bring wider economic, environmental and social benefits beyond electricity generation, but these benefits – including poverty alleviating measures, carbon mitigation and financial returns to government – may also be compromised in the case of project delay.



Non-technical risks are complex because they combine a tangible, measurable, identifiable impact with stakeholder perception of that impact. Managing the risk of delay therefore requires a firm understanding of both project impacts and stakeholder's perceptions of those impacts.

## CAUSES OF PROJECT DELAY

In the hydropower sector, delays are usually caused by multiple factors. They can be divided into two broad types. Technical risks include engineering and commercial problems, while non-technical risks include environmental and social factors, community issues, and health and safety challenges.

Although there is not extensive data on the causes of hydropower project delays, a study of oil, gas and mining projects by ERM, an environmental consultancy, shows a pattern which is likely to be similar to that experienced by the hydropower industry.

In this study, a majority of the projects surveyed experienced some type of delay (54 per cent). Of these, a large proportion of the delays were attributed to non-technical causes, particularly environmental concerns (16 per cent), permitting issues (16 per cent) and a lack of social acceptance (11 per cent).

The hydropower industry has a lot of experience in dealing with technical risks, but there's room for improvement in identifying and addressing the non-technical causes of delay. This is largely due to the complexity of non-technical risks, which combine a tangible, measurable impact with stakeholder perception of that impact.

Traditional Environmental and Social Impact Assessments (ESIAs) are effective at identifying a project's impact and potential mitigation measures, but often overlook stakeholder expectations and perceptions.

Unfortunately, failure to address an issue which stakeholders perceive to be significant can cause a costly project delay. Managing the risk of delay therefore requires a firm understanding of both project impacts and stakeholder's perceptions of those impacts.

## IDENTIFYING AND ADDRESSING CAUSES OF DELAY

The Hydropower Sustainability Assessment Protocol is widely recognised as the most effective tool currently available to measure non-technical delay risks associated with a hydropower project. It is particularly effective at identifying these risks as it has strong focus on measuring stakeholder engagement and acceptance across a broad range of topics – 23 in total.

Analysis of a recent survey of 42 international hydropower projects which experienced pre-construction delay

showed that a protocol assessment would have identified the cause of delay in 44 per cent of the cases.

Using the protocol could help to avoid costly delays and ensure that stakeholders receive economic and social benefits in a timely manner. This is particularly true in a weak regulatory context or in the absence of strict bank lending conditions. In these circumstances, meeting legal or financial requirements is unlikely to address all of the non-technical risks.

As with other businesses, successful

hydropower operators and developers are those that move beyond compliance, to build and maintain social licence to operate by minimising non-technical risks. Following the structure of the protocol provides a means of assuring investors or company directors that a project can manage uncertainty and be delivered on time and to budget.

