ARE CONSTRUCTION DELAYS, ACTUALLY DELAYS?

DETERMINING CONSTRUCTION DURATION

AG's OCCASIONAL PAPER

Royal Audit Authority

EXECUTIVE SUMMARY

Over the years, the RAA has been seeing increasing cases of audit findings related to delays in constructions such as non-levy/short levy of Liquidated Damages, unjustified grant of time extensions, irregularities in termination of contracts, frequent and unjustifiable grant of time extensions, defective works arising from hurried constructions, making payments before completion of work and in-efficient monitoring and supervision. In addition, most of the infrastructure projects in Bhutan result in cost and time overruns thereby depriving timely services to the ultimate beneficiaries. It also gravely impacts the development plans of the country.

One of the major reasons for such irregularities is the lack of proper and systematic determination of construction duration. Determination of construction duration is either not done professionally, scientifically and appropriately or most of the contractors are not capable of delivering the contract works at the required time and quality. The problem of determining construction duration is usually due to inadequacies in planning. The agencies do not spend the required time and resources in planning. There are also cases of '*one size fit all*' designs and drawings, especially in the case of BHUs and schools, irrespective of the location, terrain, soil stability, weather etc.

Therefore, the construction delays may not actually be delays but rather wrong assessment of the construction duration. Besides, political and management pressures, commitment to complete within the financial year, religious beliefs etc. also put pressures on the agencies to set unrealistic construction durations. On the part of the contractors, not visiting the sites prior to the

submission of bids, blindly accepting the duration for fear of losing the work, misusing the mobilization advances and holding too many works in hand and not employing the committed resources at site could be some of the reasons for the delays.

In order to avoid delays in constructions arising from invocation of liquidated damages clause, unjustified and unreasonable time extensions, termination of contracts, litigations and arbitrations, the RAA would like to recommend the following strategies, especially focusing on streamlining the construction duration;

i. Adopt consistent and objective approach in determining the construction duration;
ii. Stringent monitoring and supervision to the extent of using GPS and CCTVs;
iii. Enforcing rightful utilization of mobilization advance;
iv. Need for prequalification criteria for contractors based on proven track records;
v. Introducing incentive clauses for early completion with due regarding to quality;
vi. Include construction duration in bids; and
vii. Instituting Independent Review Committee

While government agencies must enforce realistic timelines, taking into account the scope of work, contractor capacity, and external factors such as weather and resource availability, the contractors must be equally held accountable for their bids, ensuring that the resources and expertise they commit to are genuinely made available at site.

It is gratifying to note that with the recent notification from the Ministry of Finance, the government has already started taking initiatives with regard to deployment of committed resources at the site.

CONSTRUCTION DELAYS, ACTUALLY DELAYS?

Wangdue Dzongkhag officials say, although the project duration is two years, it will be completed in a year. *Source: Kuensel (3 February 2021)*

INTRODUCTION

Bhutan initiated its development process in the early 1960s with the start of five-year plans. This allowed for proper allocation, prioritization and achievement of its developmental activities in line with the needs of the time, public and situation of the government. Over the years, there has been substantial increase in the time, resources and investment made on the development of infrastructures.

Initially investments were made for development of infrastructures in the health, education and agriculture sector and this has gradually shifted to transport, telecommunication and amenities including electricity, sewerage, water supply etc. More recently, there has been substantial investment in hydropower sector considering its importance to the growth of Bhutanese economy.

CONSTRUCTION DURATION

Determination of construction duration, which is one of the major contributors to quality infrastructure, is a sophisticated and complex task especially in the Public Sector.

Any error in the estimation of the construction duration not only adversely impacts the implementing agency, the contractor and the funding agency but also the public at large who are usually the ultimate beneficiaries.

Therefore, proper estimation of construction duration is essential in providing quality infrastructure, reduced burden of maintenance costs and greater value and services to the citizens.

Bhutan lies in a geographically fragile region. Besides it being prone to earthquakes, the land, with the young and growing Himalayan range, is often affected by landslides, floods and GLOFs. The northern region of the country is cold and experiences snowfalls every winter while the southern region is battered by heavy rainfall during the monsoon season. These factors, more often than not, impact the construction duration. Construction activities within the country, therefore, require a cautious and scientific approach in determining the duration to achieve the optimum results.

Bhutan currently prioritizes constructions in roads, bridges, office infrastructures, agricultural facilities and hydropower. With increasing annual budgets both in the construction and maintenance of such facilities, it is important to understand whether the basic requirements of quality, sustainability, operability, health and safety have been included in the planning process. Government construction projects should focus on Economy (Minimum cost with due regard to quality), Efficiency (Reduced time and resources) and Effectiveness (Of desired quality and achieving the intended purpose).

Being a developing country, the country needs to invest in infrastructure development, which is evident from the budget allocation of all the past successive five-year plans.

Table 1 shows the amount invested annually in Public Sector Construction over the years from 2016 to 2021.

Ob. Code	Particulars	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021
51.01	Exp. on Structure – Buildings	6,501.506	7,336.920	3,325.02	4.817.69	5,376.188
51.02	Exp. on Structure - Roads (incl. culverts, drns)	6,282.228	7,317.330	3,688.79	4,317.76	6,874.295
51.03	Exp. on Structure – Bridges	416.353	973.654	349.191	247.054	407.594
51.04	Exp. on Structure - Irrigation Channels	574.798	433.788	321.686	445.897	463.640
51.05	Exp. on Structure - Drainage Systems	49.131	36.380	32.872	83.525	131.170
51.06	Exp. on Structure - Water Supply & Sanitation	600.475	1,153.76	1,164.90	1,014.92	970.227
51.07	Exp. on Structure – Plantations	281.925	309.386	205.354	382.153	645.161
51.08	Exp. on Structure – Others	1,902.756	1,386.300	813.309	1,367.64	2,362.951
Total Amount (Nu.)		**16,609.169**	**18,647.518**	**9,868.25**	**12,676.639**	**17,231.226**

While the commitment of the RGOB towards providing infrastructure and facilities to the public has stayed un-wavered, the Royal Audit Authority has also been pointing out increasing cases of non-compliances and lapses in public sector construction. It is often observed that public sector infrastructure constructions are riddled with delays, defective works and inefficient monitoring and supervision. Such problems usually lead to increasing costs, ineffective service delivery and need for regular maintenance. The delays in constructions, the lack of the acceptable quality of works and regular and frequent grant of time extension for construction activities all point towards one major area of construction going wrong, i.e. the determination of construction duration**. Determination of construction duration is either not done professionally, scientifically and appropriately or most of the contractors are not capable of delivering at the required time and quality.**

WHAT IS GOING ON?

There is no scientific method of determining the construction duration being used by the public sector entities in Bhutan. Without an appropriately designed project management plan, most construction activities in the country, especially in the public sector, result in cost and time overruns gravely impacting the development plans of the country. Appropriate allocation of construction duration is necessary to achieve the quality of construction activities besides accumulating savings in form of lower maintenance costs in future.

Development of public sector infrastructures, if awarded on contract, usually suffers or results in time extension, delays

and/or compromise in quality of works. If departmentally executed, there is no limit on the cost or duration besides the need to provide the services at the earliest. Additionally, traditional infrastructure and buildings like dzongs and lhakhangs do not have set durations for constructions and are often based on the estimated cost.

The problem of determining the construction duration is usually due to inadequacies in planning. Where agencies identify the activity to be undertaken, it is usually not assessed in terms of its needs, options, goals and intended benefits. Moreover, in order to make a realistic estimate, public sector agencies do not consider the time and resources, design and drawings, surveys and locations including the weather condition of the location.

The private sector lacks the expertise, experience and resources to produce quality and timely products. Growing number of contractors competing for limited works also results in undercutting and submission of unrealistically low bids leading to delays and poor-quality infrastructures. Besides, contractors usually quote low rates just to ensure that works are awarded to them without the consideration of the volume of work, site conditions, need for machineries, engineers and other resources.

THE ISSUES

Why is determining the construction duration of public sector infrastructures difficult?

In various countries, it has been observed that public sector infrastructures usually take longer and are more susceptible to failures and ineffectiveness in delivery of its outcomes due to

changes in market conditions and/or needs of the public. Saleh et al. explained that the causes of delays in public sector projects were due to ineffective planning, poor communication, lack of equipment and design errors.

An Example: The contract for "Formation Cutting (FC) works from Km 22.00 till Gongrizomsa" on Gyelposhing–Nganglam Highway was awarded with an initial contract duration of 18 months. However, the actual time taken for construction was 65.5 months showing an increase of 364%. In the same project, the contract for "Providing and Laying of Base Course, Bitumen Sealing, Construction of L-drain and Cross Drainage from Chainage 20.00 – 32.46 km on Gyelposhing–Nganglam Road Project" had three revisions of contract duration starting at 10 months to 25 months and then back to 14 months, even before commencement of the work thereby raising questions on the credibility and reliability of construction durations.

In Bhutan, though the delays in construction can also be attributed to unrealistic estimated duration, the unrealistic project duration can stem from the limited understanding of the construction sector. The complexities and determinants of items involved in construction of Public Sector infrastructure can be overwhelming and determining an accurate estimate and timeline is often difficult.

But, are project delays in the public sector in Bhutan, actually delays?

If we are to assess the delays in projects, time extensions, non-completion or termination of contracts and inferior quality of works, we might really understand why there are so many

projects that do not complete on time. Perhaps an assessment of the actual duration for any construction activity has not been appropriately conducted and agencies often randomly decide on the construction duration. Additionally, agencies are also faced with political pressure due to commitments of political parties that may not actually be feasible but are forced to complete within certain period of time. Such practices, especially inadequacies in planning, often lead to defective construction works and huge costs in maintenance of the infrastructure over the years. Bhutan is a consumer society and almost every input to public construction needs to be imported. While there is a system of reviewing the contractor's capacities in terms of equipment and past experiences of carrying out public sector construction activities, the problems associated with labour, materials and regulatory requirements are countless. Besides, at the time of bidding, the contractors often fail to look at the construction duration and do not question the duration by making their own assessment after visiting the sites.

Contract duration is a term used to describe **the period through which a contract is effective**. This can also be understood as the period between the contract effective date and the contract end date - both of which are typically outlined within a contract and will be agreed to by both parties.

One of the first questions anyone asks when trying to undertake construction work is: **"How long is it going to take?"**

As with all things, it is important not to take too long, or conversely, to allow too little time. There are consequences attached to both.

Time for completion is an important concept in contracts. When a time limit is attached to an obligation under a contract, failure to complete that obligation within the time prescribed is usually a "material" breach of contract and the executing party could be imposed Liquidated Damages or even termination of contract.

However, the legitimacy of the contract duration allocated is usually up for debate. While contractors claim that agencies do not allocate adequate time and thereby the timely completion and quality of work suffers; implementing agencies accuse the contractors of not effectively managing their resources and funds to complete within the stipulated time and with required quality.

Therefore, it is important to understand the problem and identify the gaps and weaknesses in determining contract duration.

The contractor may be able to get the completion date changed, which is typically referred to as an "extension of time". Essentially, the contractor makes an application giving appropriate justification with evidences and, if the other party agrees, the date can be changed.

FACTORS THAT INFLUENCE CONSTRUTION DURATION

Over the years, the Royal Audit Authority has raised the issues of incomplete, defective and substandard works through its various reports and made relevant recommendations. There were also instances where construction contracts were terminated due to the inability of the contractor in completing the works on time. The RAA also observed cases where implementing agencies regularly grant time extensions on a contract package, without

proper basis, although the deliverables and delivery time has already been agreed upon by both parties.

Such lapses, deficiencies and errors in the contract management point towards inadequacies in the determination of contract duration especially for construction projects. The following factors need to be assessed appropriately and adequately to ascertain the construction duration:

a. **Construction Site:** Usually, government agencies tend to adhere to "one design fits all" system of construction for similar activities like *the construction of BHUs across various places in the country following same drawing and design or construction of 4/6 units classroom or other school structures using one mother drawing and design provided by the ministry*. However, the site of construction, its geographical location, geological conditions, accessibility to transportation and materials should also feature in determining the construction duration. Without appropriately assessing the construction site, it becomes difficult for contractors in delivering the infrastructure in the required quality and within stipulated time. In addition, the contractors also fail to visit the sites before submitting the bids.

b. **Scope of the Construction and its Complexity:** The size, cost and activities in the construction is also often overlooked in determining construction duration. Instances have been observed where blanket durations are accorded for small and petty contracts although the volume of work and cost involved are quite different. Government agencies do not adequately include the scope of construction in determining

the duration and the contractors blindly accept the proposed duration for fear of losing the work.

c. **Weather Conditions:** Although a small country, the weather conditions in Bhutan vary greatly with very cold northern region to the hot and humid southern belt. Construction activities are largely dependent on the weather for quality infrastructure and without adequate assessment, the construction duration could either be too less or fairly extravagant resulting in non-completion on time or untimely provision of service to the public. The RAA often came across many cases where knowing that it rains heavily in southern Bhutan in summer and very cold in the north in winter, these factors were not considered while determining the construction duration. Therefore, contractors often request for time extension on these factors. For example; *one of the reasons for granting time extension in the construction of JDWNRH Additional Wing was cited as cold weather conditions.*

d. **Availability of Resources**: Bhutan is largely dependent on foreign sources for materials and labour and securing these usually takes a lot of time. Procedural requirements, accessibility of the specified materials and timely securing the labourers might delay the start or completion of the construction activities. Additionally, contractors also tend to hold too many works at hand and are unable to allocate adequate resources to the site.

WHAT CAUSES CONSTRUCTION DELAYS?

The legitimacy of delay in construction seems questionable. When procuring agencies are themselves unclear about the estimated duration that any construction project might entail, the allocated construction durations could merely be guesswork and commitments of the agencies or time pressure. Additionally, construction activities are delayed due to the following reasons:

- The comparison of estimated duration for constructions undertaken by some of the procuring agencies showed that the duration estimate varies to a wide range and there is no proper basis for determining the durations. For example; *the Southern East-West Road Network Improvement Project including (i) Manitar-Raidak, (ii) Raidak-Lhamoizingkha, (iii) Pangbang-Amshingwoong (Nganglam), (iv) Tsebar-Mikuri-Durung Ri, and (v) Samdrupcholing-Samrang did not set a specific requirement related to labor commitment, which resulted in acute manpower shortages. This developed into several delays during the critical periods of the project, more so during the peak agricultural seasons when the local laborers were scarce, thus further affecting the project schedules*.

- The PRR requires the agencies to determine the equipment and key personnel required by the contractor to execute the work. However, there is no minimum requirement of labor to be committed for the works undertaken, which are actually critical in ensuring the progress of the works. The predetermined resources, if identified, would render basis for estimating realistic construction durations.

- Though the PRR requires submission of contractors' work plan, the submission of work program is seldom insisted by the procuring agencies. Even if it is submitted, it is mere a formality as procuring agencies fail to check sequences of works and milestones of the projects which could facilitate monitoring and supervision by the procuring agencies. For example; *in the Wangduephodrang Dzong Reconstruction Project, where the work plans could have been a mere formality, the contractor was obliged to submit an itemized work plan. The procuring agency did not check the feasibility in earnest leading to non-meeting of milestones and delays on account of mismatches between the work plan and actual resource deployment.*

- When duration of contract is determined unrealistically, and the work programmes are not matched with capacity of manpower, equipment and other resources, the contractors may not be able to complete the work within the stipulated duration. If the contract duration is not determined realistically and are not practicable, there is a possibility of contractor factoring in associated and hidden costs in their rates. On the other hand, the contractors may also be unfairly penalized for unrealistic shorter duration of construction period. There is no recorded basis for determining the construction duration with respect to available resources such as labor, machines and materials. For example; *PHPA-II, did not fully consider inflation in the initial estimate besides unforeseen technical difficulties, resulting in a cost increase of 93%. Changes in design-from surface to underground powerhouse and geological surprises further exacerbated the costs which led contractors to factor in hidden contingencies*

in their item rates to cover risks associated with delays and unexpected challenges.

- The weightage of 25 points is allocated to bidders' capability in the first stage of bidder qualifications. The bidders shall get 100% points under this parameter if the equipment required is owned and 75%, if hired. Similarly, 25 points is also allocated for availability of skilled manpower. The bidder's equipment commitment is to be evaluated against the procuring agency's requirement. The points allocated to each equipment and personnel represent its importance in the execution of the work. The equipment and personnel indicated as required are deemed to be essential in executing the work and substantial points allocated for this parameter is indicative of being critical pre-requisites for qualification. Therefore, differentiation on the basis of access to equipment have been kept at substantial range through point system. There were instances where the deployment of machineries and personnel for works under contract have not been enforced during execution of the work. For example; *in the Trongsa Dzongkhag Road Widening Project, the contractors had promised during the bidding stage to engage highly developed machinery with skilled personnel. However, the equipment was not duly deployed during the execution, causing delays in the project execution. The procuring agency did not see this through to ensure that resources committed were utilized as requested.*

- The delays could be attributed because of ineffective monitoring system in place to oversee the equipment and personnel committed by the bidders. The evaluation process

merely sees the access and availability but does not evaluate their prior engagements of works-in-hand, i.e. if the contractor is engaged in works outside government agencies which do not come within the purview of e-tool system. For example; *in one of the construction works at the Gaedu College of Business Studies, the delays in the project were brought about by non-effective monitoring of equipment and personnel. The contractors were found to be diverting their resources to more profitable private projects, while the college construction remained lagging behind. The monitoring mechanism at work was not strong enough to detect these lapses in time, which resulted in over a year's delay in the project.*

- There is no definite time duration for the reconstruction and renovations of Dzongs and Lhakhangs irrespective of the project size. There is variation in the total man-days reported for the same item of work. For example; *in the renovation projects related to heritage sites, such as the Punakha Dzong and Paro Taktsang in Bhutan, they have problems with undefined timelines. The renovation projects of these sites did not have any specific duration guideline because of the intricate task of preserving historical integrity using traditional construction methods. Carpenters skilled in Zhu fabrication were utilizing different man-days for the same tasks in different projects. These tasks were therefore unpredictable because they can cause unforeseen delays.*

- The inadequacies of internal mechanisms to ensure check and balance render conducive environment and reins to officials charged with the responsibilities to circumvent and flout rules, requirements and best practices, embrace

unprofessional and in some cases, unethical practices apparently not in the interest of the procurement principles. The wastages and losses in terms of excess payments, payments for works not executed and inflated bills, acceptance of defective works, etc., are immediate consequences of mal-administration that apparently accord secondary importance to internal governance. The wastages, losses also arise from inaccurate specifications and quantification of works. For example; *the Supply and Installation of EV stations by MoIC where poor internal governance and unethical practices led to forging of cancelled tender IDs, acceptance of substandard work, and inflated bills. In some instances, the Ministry overpaid for works never executed. Mal-administration may negatively affect public trust and intended outcomes.*

- The inexperience and inadequacy of engineers have also led to various flaws such as incorrect estimates, BoQs, technical specifications, inappropriate working methodology etc, which have affected the implementation of the constructions. The construction works imposed on agencies, without assessing the capabilities in terms of technical competencies, have far reaching impact on quality, time and cost of the constructions. For example; *in the case of Lhamoizingkha Bridge Construction project, the inability of the local engineers to deal with the complex technical specifications resulted in delays. The incorrect BoQs and flawed design meant a high volume of re-work, slowing down the whole process of construction. Besides, an inability to provide an early geotechnical conditions assessment resulted in time overrun situations.*

- There is no set standard for construction duration on works that are carried out departmentally. The agencies would understand construction duration better if similar work pattern and completion dates were also followed for works carried out departmentally.

- Wrong timing on the commencement of construction works also lead to delayed constructions. Any constructions, if properly planned, could save both time and resources. Excavation and blacktopping works in summer, cement works in peak winter etc. hampers both quality and duration of the constructions. Therefore, the construction works should be planned in such a way that such activities fall during favorable seasons.

RECOMMENDED STRATEGIES TO ENSURE TIMELY COMPLETION OF CONSTRUCTION ACTIVITIES

In order to avoid delays in construction either arising from or leading invocation of the liquidated damages clause, unjustified and unreasonable time extensions, termination of contracts and several cases in arbitration, the RAA would like to recommend some strategies especially focusing on streamlining the construction duration;

i. Adopt consistent and objective approach in determining construction duration

There is a need for objective determination of construction duration based on the minimum resources expected to deploy during the construction. The apparent reason for delays and time overruns for most of the construction works is the unreasonable

duration thrust upon the contractors. This is manifested by differing durations determined for similar constructions in terms of design and size. All these add to the risk of compromising quality in an effort to complete within unreasonable deadlines.

While the completion will depend on the overall efficiency of the contractors in managing the contracts, it is important to determine reasonable construction periods for all construction works undertaken by the government, considering the minimum level of resources. The scientific basis would ensure realistic determination of time that is seen just and fair both to the agencies and the contractors undertaking the project.

All factors that determine construction duration should be appropriately and adequately addressed to ensure that the duration allocated to the contractors are not unreasonable. The works carried out departmentally should also be carried out in line with the estimated durations identified by the respective agencies. Moreover, for traditional construction activities, there is a need to do proper research to identify the duration for each activity to ensure consistent and timely completion of the construction works.

ii. Stringent Monitoring and Supervision

One of the reasons for the delays in construction stems from the fact that there is minimal supervision and monitoring of the works. Shortage of engineers is often cited as one of the main reasons for the minimal supervision. From the contractors' side, a common cause of delays is the failure to deploy the necessary key personnel and machinery as committed in project bids.

However, in absence of regular supervision, it is difficult to detect such failures on time.

To address this issue, implementing an **Electronic Monitoring System (EMS)** could be highly effective. This system, which can utilize GPS tracking and CCTV, would enable implementing agencies to not only supervise the progress of work but also monitor deployment of key personnel and machinery. By providing real-time data, the EMS would enhance supervision efficiency and allow for immediate decision-making when necessary. Additionally, it would reduce the need for physical site visits, thereby cutting down on travel costs. These provisions will encourage timely completion, quality infrastructure and will also help in ascertaining accountability for success or failures of the construction works.

iii. Need Proper enforcement of Mobilization Advance

The construction works allows 10% interest free mobilization advance to the contractor for the purpose of mobilizing resources to the project and to start the project.

However, there is no system in place to ensure that mobilization advances are used for the intended purpose. The delay in delivery of resources at the project location impacts the kick-off of the project thereby leading to delays in completion of the projects. The RAA has come across cases of improper utilization of mobilization advances (diverting the mobilization fund to other projects and or contractors absconding the site after receiving mobilization advance) and ultimately impacting the project completion. Therefore, a proper system to determine the rightful

utilization of mobilization advance for the projects needs to be instituted.

iv. Prequalification Criteria for Contractors

Such a system would ensure that only contractors with a proven track record of delivering projects on time are allowed to bid. This could involve the use of a **performance rating system** by the **Independent Review Committee** (refer recommendation No. vii), where past performance on timelines is used to prequalify contractors for future bids.

v. Incentive-Based Contracts

Introduce **incentive clauses** where contractors are rewarded for completing the project ahead of the schedule. This can foster competitiveness in delivering projects efficiently. For example, offering **bonus payments** for early completion or **reducing retention** for high-performing contractors can motivate better performance.

vi. Include Construction Duration in Bids

As with submission of the financial and technical bids, the government agencies could also start a system where assessment of tenders are done on financial, technical and timely construction. This will reduce the burden on the implementing agencies from identifying appropriate construction duration and will also ensure that any delays and incomplete works can be appropriately sanctioned. Besides, such a system will force the contractors to devote time and resources in preparing the bids including visiting the construction sites.

Contractors submit bids on the financial, technical and duration and the lowest evaluated bidder who provides the infrastructure within the time acceptable to the implementing agencies is selected. However, this also requires overhaul in the current procurement practices especially in the procurement of works.

vii. Independent Review Committee

An Independent Review Committee could be established for bigger constructions, drawing members from relevant agencies such as a Project Manager from the Ministry of Information and Technology (MoIT), a Quality Control expert from the Bhutan Standards Bureau (BSB), a Finance expert from the Ministry of Finance (MoF), a Procurement Officer from the Department of National Properties (DNP), and a Design Consultant from a private agency.

The members shall be appointed to the committee based on competence and integrity, free from conflict of interest, with well-defined roles and responsibilities to avoid duplication. The committee may plan and hold meetings routinely with the purpose of effectively reviewing or conducting various activities such as:

- Project progress review: The current status will be measured against overall project timelines and milestones.
- Address emerging issues: This will entail the identification and mitigation of challenges or risks.
- Make informed decisions: Provide timely, well-considered recommendations or interventions to make sure that the project is kept on track.

- Evaluate and Rate the contractor's work performance: Empowering an **Independent Review Committee (IRC)** with the authority to rate contractor performance is likely to produce **more accurate, unbiased, and transparent evaluations**. This would minimize favoritism, encourage contractors to maintain high standards, and provide a clear, reliable basis for future bid eligibility. Additionally, the IRC's expertise and accountability could help improve the overall quality of infrastructure projects by incentivizing contractors to perform at their best.

The committee members with diversified expertise should be responsible to monitor, supervise and evaluate the work comprehensively.

For instance, in the United States, Contractor Performance Assessment Reports are handled by independent evaluators, with performance scores impacting future eligibility for government contracts. Independent review ensures that these scores are reliable and reflect the true performance of contractors.

CONCLUSION

Despite repeated recommendations in the Annual Audit Reports and individual audit reports, the instances of sub-standard works, defective works, incomplete constructions and termination of contracts occur yearly and frequently. Construction delays in Bhutan, particularly in public sector projects, are not merely inevitable consequences of unforeseen circumstances, but often the result of poor planning, lack of scientific estimation, and inadequate resource management. The recurring issues of time overruns, substandard work, and frequent contract extensions indicate a systemic problem that requires immediate attention.

A contract duration shorter than necessary can lead to rushed and substandard work, while an excessively long duration delays the delivery of infrastructure benefits to the public. Thus, having consistent contract durations for construction projects is crucial for ensuring the timely and efficient delivery of infrastructure. A standardized approach to contract duration promotes fairness and transparency in the bidding process, allowing contractors to plan resources and manage projects effectively. It also helps avoid unnecessary delays and cost overruns, which can arise from either overly ambitious or excessively long timelines. Consistency in contract durations ensures that projects are completed within a reasonable time frame, allowing the public to derive timely benefits from new infrastructures. In addition, it will also minimize the possibility of disputes between contractors and clients over delays and liquidated damages thereby fostering a collaborative working environment. Such a system will ultimately lead to better quality work and overall success of the projects.

While government agencies must enforce realistic timelines, considering the scope of work, contractor capacity, and external factors such as weather and resource availability, the contractors must also be equally held accountable for their bids, ensuring that the resources and expertise they commit are made available rather than merely making false commitments.

Collective efforts from both the implementing agencies, contractors and officials involved is necessary to ensure that the citizens are not deprived from the benefits of infrastructure development in the country.

Moving forward, public construction projects in Bhutan need an overhaul in terms of planning, execution, and oversight. By addressing these core issues, the country can avoid the long-term financial burdens of time overruns and defective infrastructure, ultimately delivering more sustainable, cost-effective, and timely infrastructure to its citizens. Through collaboration between government agencies, contractors, and oversight bodies, Bhutan can pave the way for more efficient infrastructure development that supports the country's growth and prosperity.

Therefore, a consistent and objective approach to determining contract durations is essential to ensure fair evaluation of delays, prevent substandard works and deliver infrastructure projects efficiently and efficiently.