

The Role of Building Surveyors in Construction & Maintenance Value Chain in light of Misadventure of COVID-19 (no. 11942)

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Key words: Building Maintenance Management; Sustenance; Investment; Return on Investment; Technical Audits; Inspections; Building Regulations; Legislation; Constitution of Kenya 2010; Value Chain; Building Surveyors; The Aviation Industry; COVID-19; Sendai Framework for Disaster Risk Reduction 2030

SUMMARY

This project is all about risk management and how the Building Surveyor could offer to fill the gaps that continue to show themselves in the number of errors and mistakes that are repeated at every site as if there is nothing to learn from experiences in the field.

Introduction (Objectives- Purpose)

Ivor Seeley in one of his books “Building Maintenance” put it most succinctly, that Building Maintenance is the Cinderella of the Built Environment, seen as a drain on legitimate profits. Yet without Maintenance, the Construction Industry is a wasted investment. Absence of or inadequate Maintenance is a danger to would-be users, of whatever asset has been built, includes deterioration/degeneration/depreciation of value. Brand new buildings have been known to become disused because of lack of maintenance or inadequate investment in upkeep. In Kenya in the last year alone, several buildings collapsed while under construction; in Kiambu County, Mombasa and in Nairobi. In Kirigiti, Kiambu a mother and her two children died when a 7 storey adjacent building under construction fell on their home, one of the apartments in the next property already occupied.

Ideally National and County Building Regulations ought to forbid these risky practices, but construction continues, unabated and unsupervised. Perhaps the investors, the design team and the builders do not fear the consequences, which if found out is likely to be a slap on the wrist, going by previous similar cases, over the years.

There are several types of buildings ranging from residential; nonresidential; Public buildings like hospitals, schools. commercial buildings (within this we have retail, offices, wholesale, manufacturing, recreational, religious, mining, warehouses, entertainment); infrastructure.

The COVID-19 pandemic triggered the unflattering (adverse) aspects of the Built Environment that we had tolerated and/or, just ignored. These must be addressed to meet requirements of the Corona Virus standards, in terms of design, choice of materials, space specifications

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that enable “keeping distance.” It became the by-word, in church, temples, mosques, stores, stadia, practically anywhere where more than three people would share space, even in public and private transportation; lifts and escalators in public buildings.

‘Public and semi-public building’. means a building used or intended to be used either ordinarily or occasionally by the public such as offices of State or Central Government or Local Authorities, a church, temple, chapel, mosque or any place of public worship, dharmashala, college, school, library, theatre for cultural activities, public concert room, public hall, hospital run by public institutions, public exhibition hall, lecture room or any other place of public assembly.

These buildings and works may include, without limitation, bridges, dams, plants, highways, parkways, streets, subways, tunnels, sewers, mains, power lines, pumping stations, heavy generators, railways, airports, terminals, docks, piers, wharves, ways, lighthouses, buoys, jetties, breakwaters, levees, and canals, and the construction, alteration, maintenance, or repair of such buildings and works. The common thread is that they are all to be used or intended to be used, and, I might add that they are presumed to be safe, secure, clean, healthy, convenient, comfortable for all categories of users.

Who/What is a Building surveyor – What is Building Surveying

The Building Surveyor is the least known of all the chapters of Surveying. Often I am compelled to explain what/who is a Building Surveyor, professionally. Until fairly recently there was really not a degree like Building Surveying and one had to join the professional practice in a round about way, making it difficult to picture a clear career path. The Royal Institution of Chartered Surveyors (RICS) has endeavoured to unpack the requirements of this particular chapter, and the pathways to it as a profession. The training is usually at College or University level, where the students learn craft, skills and knowledge of Building Surveying. In this respect, students have taken the course of Land Economy – belatedly called “Real Estate” and specialized in Building Pathology, Building and Construction Technology. Since Building Surveying is as much technological and as it is sociological, one learns the need for Sensitization, Awareness and Education, thus Customer Relationships Management becomes critical as communication must be clear to the Building Surveyor and the Client or Customer.

The Building Surveyor is a checker scrutinizer scrutineer investigator;

1. A person who investigates or examines something, especially boats for seaworthiness: "a marine surveyor"
2. Investigating properties, identifying structural faults and providing recommendations, which could include seeking the input of a Structural Engineer, for essential repairs.
3. Assessing damage (following a fire or a flood) for insurance purposes; establishing who is responsible for repair costs;

4. Advising clients on issues such as property boundary disputes; Inspecting properties to make sure they are meeting Building Regulations, fire safety and accessibility standards;
5. Dealing with Planning Applications, and with Improvement or Conservation Grants;
6. Advising on pre-purchase conditions of the properties being bought. Not infrequently, investments or private citizens or public entities have been known to commit huge amounts of money to buy. In many instances these represent life-time savings, or even funds where someone has fiduciary responsibility to ensure that they are getting true value for money or best value for money spent. .

When the Building Surveyors Registration Board of Kenya was asked by two of the universities to critique the proposed syllabus for their Building Surveying Course, it was a golden opportunity to conduct some deep and broad soul searching, to come out and identify the gaps in the Construction and Maintenance Value Chain. The Building Surveyor is the person who examines the condition of land and buildings professionally; an official inspector of something, especially for measurement and valuation purposes; "surveyors recorded the species and locations of fallen trees"

WHAT IS BUILDING MAINTENANCE MANAGEMENT?

Building maintenance management is **the coordination of maintenance activities designed to maintain, repair, and improve buildings and their related systems and provide a safe, habitable, comfortable, and functional environment in a cost effective manner.**

It encompasses all tasks that make a space "livable" and ensures that major building systems, such as electrical, plumbing, fire prevention, and HVAC, are working efficiently.

Building maintenance management also includes a building's structure, such as flooring, walls, ceilings, roofs, and fixtures. In addition, building maintenance extends to building exteriors and include painting, cleaning, landscaping, and grounds- keeping. *FasTrak SoftWorks, Inc.* This gives character, style and appeal or otherwise of the building and its owner, as well as the users' whose reputation and image is at stake.

Building pathology is the **study of building defects, building decay and building performance failure** for the purposes of formulating suitable remedial and management solutions. The discipline looks at the interrelationships between the physical building, its use, occupation and environment to gain valuable insights into why a building fails. *Watt, David, 2007*

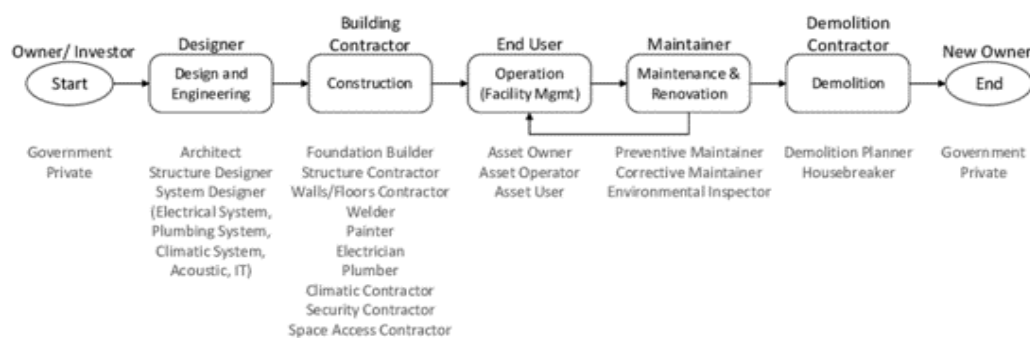
VALUE CHAIN AND VALUE CHAIN ANALYSIS

The term **value chain** refers to the various business activities and processes involved in creating a product or performing a service. A value chain can consist of multiple stages of a product or service's lifecycle, including research and development, sales, and everything in between. The concept was conceived by Harvard Business School Professor Michael Porter in his book "The Competitive Advantage: Creating and Sustaining Superior Performance".

Taking stock of the processes that comprise your company's value chain can help you gain insight into what goes into each of its transactions. By maximizing the value created at each point in the chain, your company can be better positioned to share more value with customers while capturing a greater share for itself. Similarly, knowing how your firm creates value can enable you to develop a greater understanding of its competitive advantage. *Tim Stobierski*

The Construction and Maintenance Value Chain is a similar undertaking and calls for careful analysis, and a lot of planning to identify the various milestones. Each sequence and node adds value to the finished product, and each node entails substantial risks. Les Brown in one of his speeches, "Keys to Self- Motivation" says what can go wrong will go wrong and at the worst possible moment. He calls it Murphy's Law.

BSRB CONSTRUCTION & MAINTENANCE VALUE CHAIN



THE BUILDING (MAINTENANCE) SURVEYOR IN THE VALUE CHAIN

The Building Surveyor comes into the picture when the construction process is completed. She/he has to take over the completed building and supervise the preventative and corrective maintenance. There will be a snag list prepared by the construction team, at the Practical Completion Stage and a whole period to make good what needs fixing. Mind you at that point the users are likely to have taken possession, and as far as I can remember, there is no formal "breaking in", induction and training on how things ought to work around here.

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Because of the pressure to take over by the new user, the demand from the financiers, design team's desire to "off-load" the structure to the Building Surveyor, the ideal protocol for taking over is not adhered to.

Ideally there ought to be a "certificate of making good defects". Something I would **warn** any would be buyer, to conduct "Due Diligence". Buying real estate is a lifetime commitment, it is not like buying a shirt. It is a much more complex interplay of technology, finance, emotion, various pieces of regulations, legislations, policies and ultimately the supreme law of the land, the Constitution of Kenya 2010.

JURISDICTIONS – POLICIES ON MAINTENANCE OF THE BUILT ENVIRONMENT.

The Building Surveyor fits into the Construction and Maintenance value chain in that she/he not only oversees the investment during use but also has the unique position of giving feedback to the design team about how well the various components gel and how well they perform under stress, such as a fire or floods. The same goes for the electrical works, plumbing works, the other services. My gut feeling is that the much needed coordination seldom happens with appropriate protocol.

WHO ARE THE STAKEHOLDERS IN THE CONSTRUCTION & MAINTENANCE VALUE CHAIN?

The principal stakeholders are the authorities, both national and county, in Kenya's context. They are the ones that craft and pass policies, legislation and regulations, which they are then expected to enforce. Equally they are the ones that set the pace and direction of development and the upkeep of standards of that development.

From the investment perspective, time and time again, people have spent colossal sums of money purchasing real estate, based purely on valuation, only to spend a similarly large sum to make the property useable or at least habitable for the intended purpose. The principle of **caveat emptor (buyer beware)** tends to favour the sellers. There is no pattern nor limit of the components or services that can be expressly excluded from the defects or shortcomings.

It could be the electrical works, the plumbing works, the walls, the roofs, the drainages, the sewerages, the doors and windows, including their furniture cannot be left behind. Case in point is a huge estate in the Eastlands area of Nairobi, where the new occupants had to bring in tables, beds and fridges through the roof, because the "normal access" is inadequate for the purpose. When we add COVID-19 to the mix things become elephant!! I can only imagine and shudder at the discomfort and inconvenience, besides the costs that might not have been anticipated.

This brings us to the issue of accountability. My Basketball experience taught me a long time back to avoid the blame game. Sometimes one has to take responsibility, even when it is not

necessarily your fault. To me that is leadership and perhaps making a note to improve or change what went wrong. Lengthy time is spent attempting to make good what ought to have been addressed prior to the documents' exchange upon signing on the dotted line. The arguments and counter-arguments are counter-productive, to say the least. Researchers and scholars need to pay special attention to the likely causes of these failures and conduct root cause analyses

. . . .
The unfortunate earthquakes that visited Turkey and Syria, in 2023 have uncovered poor designs, poor workmanship, poor choice of materials and components mismatch. The sad and painful loss of lives and livelihoods are a manifestation and indictment of how we professionals in the industry, sometimes get away with shoddy works which are then covered and no one is wiser. Poor supervision or no supervision at all, other than approving sketches and drawings, is what is likely to result into failure. The Turkish authorities have taken the decision to prosecute the professionals involved. I trust and hope that it is a requirement to have Professional Indemnity Insurance and the contractors in that part of the world better have suitable Contractors' All Risk Insurance to cover any eventualities. The penalties meted are likely to be heavy, emotionally driven by public outcry, pictorial evidence, as seen in the media. This kind of jurisprudence can override reasonableness in court matters, and the respective laws of the land.

The notion of Green Building has come into vogue, and, in Kenya, we have the Kenya Green Building Society (KGBS) that is doing plenty to raise awareness, conduct benchmarking, and sensitize the citizens on the need for being energy use conscious, the same with other utilities like water.

WHAT WILL THIS PAPER DO FOR THE STAKEHOLDERS?

There is a tendency for us professionals to keep information to ourselves, as if it is a top secret. In the process we shoot ourselves in the foot. We hoard vital/critical information and knowledge so much that it creates a vacuum. Nature abhors a vacuum, so this vacuum is likely to be filled by any other professionals and even non-professionals.

The Fort Jesus on Mombasa Island, Coast Region, Kenya: a Listed Building

Our Stakeholders are our Customers in every sense of the word. In 1593-1596, the Portuguese Built the Fort Jesus. It took 4 years. Its designer was an Italian Architect called Giovanni Battista Cairati. It was meant to protect the old port of Mombasa. It is one of the most outstanding pieces of Portuguese presence on the East Coast of Africa. Of late it has been taken over by the National Museums of Kenya (NMK) as a World Heritage Site and a Tourist Attraction. Mombasa's Fort Jesus, built, to protect the Old Mombasa Port, in 1593-1596 by the Portuguese and today a **UNESCO World Heritage Convention**, was recently discovered to

be slowly washing away to the sea, due to the rising sea level; State House, next door is not entirely safe either.

The Climate Change Phenomenon has brought a different challenge from the one originally intended. The rising water level in the Indian Ocean, and the marine climate is eating away the bottom of the Portuguese Fortification and the National Museums of Kenya and by extension the Government of the Republic of Kenya will have to spend a fortune to protect the Fort Jesus. When I first joined the then Ministry of Works in 1980, there was a vote for Maintenance of the Sea walls in Mombasa, Malindi, Lamu. Is it possible this was scrapped?



Fort Jesus, Mombasa Island; - Kenya National Museums and Heritage Act, 2006

The Hotels, schools hospitals and other public use Facilities in the Rift Valley

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The structures around the shores of the Lakes in the Rift Valley; schools, hospitals, hotels are reported to have submerged into water, and are therefore not habitable. This is another climate change phenomenon, which is not necessarily linked to heavy rain downpour. It seems this water is coming from underground, and further research is required to investigate what is going on.

Results:

To underscore impending doom as a direct result of the absence of **maintenance policy and legislation**, or the negligent application thereof, that would otherwise assure safe, secure, convenient, comfortable and up-to-standard conditions of assets put up at great expense. Investing in Real Estate commits massive resources in assets with the assurance that condition surveys & audits and structural conditions of the assets meet the standards of performance, rather than spend almost the same sum in repairs and restorations. For purposes of this paper I shall focus on the Kenyan Economy's Construction Industry, which was growing steadily and contributing to the Gross Domestic Product (GDP), until COVID-19 hit us.

When CORONA found its way into Kenya, it caught us flat-footed. From the news around the world, no one was prepared. There was a rush to set new standards of personal conduct. There were posters everywhere, and then there were stories of people in Europe, especially Italy and Spain, later the UK, dropping dead in the streets, in buildings. No immediate remedy was available, and, in the middle of all this it was feared that all of Africa would perish. We did not have sophisticated equipment nor infrastructure to cope, but we did manage to withstand the worst.. Governments took the lead role and responsibility of informing the citizenry through all the media – print, electronic- COVID-19 came like a thief in the night.

In a way CORONA changed the cultural practice of burying people. Government declared that any COVID-19 victim had to be interred immediately. As if there was not enough fear already, the social media took advantage of the fear factor and came up with Disinformation,

Misinformation, outright lies. It is amazing how normal thinking people are willing to share misinformation, or in this case vicious rumours about a pandemic that we know very little about. This triggered doubt in the minds and hearts of many people all over the world. It was a sad and sick joke.

The World Bank estimated that the Construction Industry contributes about 17% of the Kenyan GDP.

Over and above the foregoing is the matter of image and reputation for both the user and the authorities that are meant to supervise and certify that upon inspection, the facility meets the required standards as per regulations.

Conclusions

THE AVIATION INDUSTRY VS THE CONSTRUCTION INDUSTRY

I have chosen the Aviation Industry as a reasonable comparator to the Construction and Maintenance Industry, in that they are both service oriented. Going by research and history there is overwhelming evidence that there are many more incidents and accidents in the Construction Industry than in the Aviation Industry. Of course the Construction industry is much older than the Aviation Industry, but there have been rapid and accelerated progress from the time the Wright brothers (Wilbur and Orville of Dayton, Ohio) became the first people to fly.

This has been spurred on by Wars and Industry Competition, across continents. The Aviation Industry is known for quite a few things. The biggest consideration is safety. They have a standard checklist that enables them to have an excellent – mind you not perfect - record of safety. This confidence-building has helped the Aviation industry to grow fast. The Aviation industry also manages time well. More often than not they are in time to take off, to land and their duration in air is certain to within minutes. I would like to add the matters of security and, although there have been lapses, notably the 9/11 and a few others, the Aviation Industry has an enviable record, worth emulating. There was the AirFrance Hijacking in Entebbe Uganda in 197/56; the Hijacking of Ethiopian Airlines that ended up in the Indian Ocean

The tendency to compromise in the Construction Industry is that we are already on the ground and one can shift their bed to a different space on even another room, if for example there is a leaking roof at a particular point. In the aircraft there is no room for errors. Either it is 100% or the flight is delayed or cancelled and with consequences, the corollary is that being casual about maintenance, leads to casualties. Lives depend on the standard duties of care, similar to the aviation industry where, before being airborne, we must be assured that every box is ticked and verified to be in the best condition as per manufacturers' specifications and the statutory requirements. Regular and thorough inspection is necessary and certification of "fitness for intended purpose or use" is mandatory. Why not emulate or at

least liaise so that the Aviation model of operation is adopted or customized. Rescue plans are usually better operational in construction than in aviation hence the need to 100% readiness

PUBLIC AND PRIVATE REAL ESTATE

At Independence, Government had the most real estate investment as it sought to consolidate its foothold in administration. Increased populations, especially in urban centres, higher standards of duty of care is required in order to protect public and private built environments, including critical infrastructures. The ever increasing insecurity threats by terrorists and other organized crime means we have to rethink how well we can build back better and harden would-be targets.

DISASTER RISK REDUCTION: “A STITCH IN TIME SAVES NINE” – THE SENDAI FRAMEWORK FOR DISASTER RISK REDUCTION 2015 - 2030

The Sendai Framework is successor instrument to the Hyogo Framework for Action (HFA) 2005-2015:

Building the Resilience of Nations and Communities to Disasters. The HFA was conceived to give further impetus to the global work under the International Framework for Action for the International Decade for Natural Disaster Reduction of 1989, and the Yokohama Strategy for a Safer World: Guidelines for Natural Disaster Prevention, Preparedness and Mitigation and its Plan of Action, adopted in 1994 and the International Strategy for Disaster Reduction of 1999. The Sendai Framework is built on elements which ensure continuity with the work done by States and other stakeholders under the HFA and introduces a number of innovations as called for during the consultations and negotiations.

It has been identified that the most significant shift is a **strong emphasis on disaster risk management as opposed to disaster management**, the definition of seven global targets, the reduction of disaster risk as an expected outcome, a goal focused on preventing new risk, reducing existing risk and strengthening resilience, as well as a set of guiding principles, including primary responsibility of states to prevent and reduce disaster risk, all-of-society and all-of-State institutions engagement.

The scope of disaster risk reduction has been broadened significantly to focus on both natural and man-made hazards and related environmental, technological and biological hazards and risks. Health resilience is strongly promoted throughout. The Sendai Framework also articulates the following:

1. The need for improved understanding of disaster risk in all its dimensions of exposure, vulnerability and hazard characteristics;
2. The strengthening of disaster risk governance, including national platforms; accountability for disaster risk management;

3. Preparedness to “Build Back Better”; recognition of stakeholders and their roles;
4. Mobilization of risk-sensitive investment to avoid the creation of new risk;
5. Resilience of health infrastructure, cultural heritage and work-places;
6. strengthening of international cooperation and global partnership, and risk-informed donor policies and programmes, including financial support and loans from international financial institutions. There is also clear recognition of the Global Platform for Disaster Risk Reduction and the regional platforms for disaster risk reduction as mechanisms for coherence across agendas, monitoring and periodic reviews in support of UN Governance bodies.

Contingency Planning and regular Audits and inspections

Kenya is a signatory to the Sendai Framework for Disaster Risk Reduction 2015-2030. There have been attempts at practising these Sendai Framework Principles and much more needs to be done. The Theme of this Conference is spot-on in terms of protecting what we already have. In my opening remarks I referred to the several categories of the Built Environment. Kenya commits upwards of Kes. 600 billions every year in construction. The new government has been carrying on and accelerating on the notion of Affordable Housing. This is noble and commendable, but to my mind, that is only half of the story. There is need for setting aside sinking funds for each new structure, and also “As Built Drawings” complete with manuals, similar to when one buys a new item. It will have a manual and warranties, guaranteeing its performance. .

The Accountants’ principle of depreciation ought to be adhered to, with the presumption that what has been put up will one day be pulled down and replaced. Further that during its useful economic life the Built Environment will require regular preventive, corrective, improvement action, in order to meet the intended purpose and emerging tastes and standards

Solai Dam Tragedy: Nakuru County, Rift Valley Region, Kenya

A Disaster like the Solai Dam tragedy in Nakuru, where 48 died could have been avoided or prevented altogether, if regular inspections and certification were practised. **Prevention is cheaper and better than cure, at the ratio of one USD to Fifteen USD.** Picture this:-

On 9th May 2018, an illegally and irregularly constructed man-made dam within the vast Patel Coffee Estates located in Solai, Nakuru, broke its banks at around 7.15 p.m, gushing out 190 million litres of water through settlements, leaving in its wake; gruesome deaths; horrible injuries(physical, mental and emotional); massive destruction of property and unprecedented displacement of people.

Official reports indicate that 47 people lost their lives. Most of those who were swept away by the raging waters were women, children and elderly persons. Public amenities were also not spared as Solai Nyakinywa Primary and a Private Medical Dispensary were also heavily affected. The students schooling at Jamhuri Primary School, Solai Nyakinywa Primary, Akuiris and Ruiru Secondary School could not go to schools since they were closed temporarily.

Questions still linger as to what exactly caused the bursting of the dam? Residents of affected villages: Endao, Energy, Nyakinyua, Milmet and Arutani in Solai division believe that the bursting was brought about by excess water from three rivers that were blocked by the Patels and directed to the ill-fated dam. In what turned out to be one of the worst **human-made disasters** and the most glaring **cases of corporate impunity and state negligence**, the Patels owned and managed nearly 8 private dams without the requisite permits and accountability to the public. The purpose of the mission was to investigate and document the causes and impact, responses and preparedness and recommend the necessary actions with regards to the Solai Dam tragedy. *Kenya Human Rights Commission*

RECOMMENDATIONS - “Protecting Our World, Conquering New Frontier”

1. Put together a training course that underscores Building Pathology and Building Construction technology and Services, embracing research and development
2. Establish Rapport with Building Surveyors in other jurisdictions with a view to Benchmarking, sharing and exchanging experiences
3. Pass Legislation that makes it a requirement for all real estate pre-purchases and leases to be preceded by a Building Surveyors full report of the Condition Survey
4. Make it mandatory that the Built Environment be inspected regularly, at least annually and certified to be “fit for the intended purpose”
5. Include the Building Surveyors in the design teams, thus establishing a **feedback control loop** that links performance of a facility to the emerging designs and obviating the errors of the previous products.
6. Sensitize citizens to the principles of the Sendai Framework for Disaster Risk Reduction 2015-2030, where emphasis is on **Preventive Maintenance**, and allowing the Community and the private Sector to play a more central and proactive roles in Disaster Risk Management, since they have a more focused shareholder base.

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1. SUBTITLE

Summary of the project

2. SUBTITLE

INTRODUCTION

2.1 Subtitle, level 2

CORONA – COVID-19 in the MIX

2.2 Subtitle, level 2

3. WHAT IS BUILDING SURVEYING- WHO IS A BUILDING SURVEYOR?

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BIOGRAPHICAL NOTES

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