Infrastructure for Africa — A Story of Elephants [1]

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Whenever phrases associated with infrastructure in Africa ring in one's ears, some distasteful thoughts are evoked of generous investments and efforts that have failed to produce "beneficial changes" in our impoverished communities. Thus, this *poem of chagrin*, a song of a *failed victory* would come to mind:

BROKEN PEDESTAL FOR THE GENERAL …

In a far island of old, wedged between continents of three,
A mighty General once lived, both feared and free,
Graceful garb and fierce face made all pause,
His dealings ruthless, he bade no pity nor cause.

His true name forgotten, known only as "The General",
Famed for his victories, undefeated, always in control,
In every battle fought, by land or sea, he emerged the cold victor,
His peers admired him, therefore, his annals no one could doctor.

But when he passed, on his resplendent tomb of marble, an odd phrase was etched,
"Herein lies 'The General', who never lost a fight, but never won a war", it stretched,
How could he, whose name spelt fright, win every battle and yet not a single war?
For greatness, it seemed, he chose battles in manner indecent men pick a whore.

Choosing the wrong battles, can lead to defeat's resounding might,
A myopic focus, he failed to discover, with only an enemy's flag in sight,
The story of "The General", echoes of many a project manager's plight.

That winning each skirmish, though a glorious feat,
Without a grander plan, the war he couldn't beat,
Though winning every battle may bring accolades and fame,
Without a grand strategy, the war may still remain the same.

"The General" epitomises project managers involved in Large Infrastructure Projects across Africa; they have delivered so many projects, but only a few have assisted in conquering our socio-economic woes. We must understand that infrastructure is a "technological system" that is nested in a "socio-economic system"—therefore, it ought to positively affect the safety, quality of life, and wealth of the community.

The Organization for Economic Cooperation and Development maintains, "Infrastructure creates value when it contributes to addressing social needs or facilitates economic activity. Choices regarding infrastructure development must therefore be focused on user [and other stakeholders'] needs" (OECD, 2017). The U.S. Department of States expressed similar sentiment five years earlier:

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"Investments in modern infrastructure lay the foundations for economic development and growth. Building roads, bridges, power transmission lines and making other improvements create jobs. When completed [to the satisfaction and benefits of relevant stakeholders], these projects help a society increase its wealth and its citizens' standard of living." (U.S. DoS, 2012)

Two important messages are noted here: (i) The works involved in delivering infrastructure result in job creation; e.g., the Daxing Airport (Beijing, China) created 40,000 direct jobs during construction; and (ii) when completed, modern infrastructure projects should increase the wealth (of the nation) and standard of living of citizens. It stands to such reasons that African countries should be gearing themselves up to deliver Large Infrastructure Projects along the WETWITS themes, as one has coined it (Mabelo, 2021):

(1) Water systems; (2) Energy systems; (3) Transportation systems; (4) Waste treatment systems; (5) Information technology [IT] systems; (6) Telecommunications systems; and (7) Social facilities (e.g., hospitals, schools, shopping centres, arenas)—Hence, the *thematic* acronym: WETWITS.

No other continent on the entire planet needs these types of infrastructure, in number and in spread, as does Africa currently; the choice is ours to embrace this as a huge opportunity or an ill-fated mission. Our seemingly daunting challenges, when considered from a positive and inspirational perspective, will rather suggest "opportunities". Indeed, we still have so many rivers for first-class bridges to span on; so many school and hospital systems yet to be built in rural communities; so many roads to be developed in our glamorous landscapes; so much agricultural produce, oil and gas, and other minerals waiting to be extracted from the ground. Further, there is so much green-clean power to be harnessed from the Grand Inga Dam sites in DR Congo and distributed inexpensively across brotherly African communities spreading from Cape Town to Cairo, from Dakar to Dar-es-Salaam, and from Abidjan to Addis-Ababa.

The World Bank has made the following predictions and/or recommendations regarding infrastructure needs/issues in the Sub-Saharan Africa region over the next decades—*each one as big as an elephant*:

(i) Long-term projections called for an estimated US$ 57 trillion globally to build new and refurbished existing infrastructure between 2013 and 2030. However, infrastructure expenditure in Sub-Saharan Africa (SSA) was expected to increase by 10% on a year-to-year basis from US$ 70 billion in 2013 to US$ 180 billion by 2025, with South Africa and Nigeria accounting for the bulk of this expenditure (World Bank, 2014)—These predictions may not materialise due to various "glitches".

(ii) Sub-Saharan Africa now requires an annual investment of about US$ 100 billion in infrastructure development over the next decades to meet the region's growing demand for infrastructure services (World Bank, 2019). The three main factors driving infrastructure investment in SSA are urbanisation, economic growth, and population growth. Thus, the Bank noted that infrastructure needs in the region are significant and require investments to address them (World Bank, 2019).

(iii) The World Bank has also highlighted the potential of infrastructure investment to drive economic growth and development in SSA. Infrastructure investment can reduce poverty, promote social inclusion, and create/sustain employment opportunities. However, the challenges of developing infrastructure in the region are significant, including issues related to governance, financing, and the regulatory environment (World Bank, 2019). [*Underlining added by author for emphasis*]

(iv) Expectedly, the World Bank has recommended that governments in SSA focus on developing policies and regulatory frameworks that are conducive to private sector investment, while also investing in the development of "WETWITS" infrastructure systems that are *exceedingly* crucial to the region's economic growth and development (World Bank, 2019).

Whether Africa will secure the funds needed to invest in its infrastructure is the kind of *thorny* topic that would keep any jury busy debating out there for quite a long time. One thing for sure, past investment in form of both aids and loans have not necessarily translated to substantial and sustainable improvements in the quality of life of the citizens. It is often argued that, "[…] aid may have had limited impact or even negative effects on economic growth and development [of Africa] in some contexts" (World Bank, 2018).

Between 1960 and 1980, African countries received significant amounts of foreign aid from donor countries and international organisations. This aid was intended to support development efforts and help address the economic, social, and political challenges facing many African countries during this period. (World Bank, 2018b) [*Underlining added by author for emphasis*]

As Data from the World Bank suggest, net official development assistance (ODA) to Africa increased from around US$ 2 billion in 1960 to around US$ 14 billion in 1980 (in 2019 constant US dollars) in the wake of decolonization and independence movements in the continent. (World Bank, 2021)

Still according to the World Bank, net official development assistance (ODA) to South East Asia increased from around $2 billion in 1980 to around $9 billion in 2000 (in 2019 constant US dollars) in the wake of economic and political changes in that region. (World Bank, 2021)

However, current levels of infrastructure and socio-economic developments in the two regions cannot compare. There could be many reasons as to why the funds (i.e., aids, grants, loans) allocated to Africa might have failed to translate into progress or beneficial changes in a substantial and sustainable scale. Truth be told, infrastructure *deficits* are not equally distributed across the continent. In terms of water infrastructure, for example, Egypt has already reached 98% of sanitation cover, whereas Ethiopia sits at around 7%; Nigeria is somewhere in-between at 63% and the DR Congo at 47% in big cities but near 0% in rural areas—compared to South Africa with 19% in rural areas. Who could the culprit be of this fiasco?

On the front row, one may mention issues such as ineptness in political leadership, endemic corruption, and other nefarious agendas, both on the part of the "donors" and of the "recipients and beneficiaries".

Nevertheless, one silent partner-in-crime (if not the silent killer, in itself) is project management (or lack thereof). By and large, Africa has spent their (borrowed) money on useless projects that have not created decent jobs and, worse still, have not increased (but has decreased, in many cases) the quality of life and standard of living of the citizens. At times, people are to pay for water or electricity they cannot even use.

The story of failed projects in Africa (viz., failed in delivering the intended and promised benefits) could be told as "a story of elephants"—which by the way is a common feature of our landscapes and culture. This story will lead one to talk about "pink elephants", "white elephants", "elephant and the ants", and "elephant and the rope". These elephants, and maybe a few more, are still trampling the African Dream:

1. A Story of Pink Elephants:

The expression "pink elephant" is usually used to describe a hallucination or an imaginary creature. It originates from the idea that if someone drinks too much alcohol, they may see pink elephants. This idea was popularised in "Dumbo", a 1941 Disney movie where the titular elephant, having drank a full bucket of champagne ended up seeing pink elephants around—which of course never existed.

While projects are meant to establish or improve operations (Mabelo, 2020b), there are instances where projects are being initiated for non-orthodox reasons. In their *drunkenness* (of ego or power), politicians and executive management often dream up "projects" that do not make any sense, and therefore are not practically feasible. Nonetheless, since such projects (e.g., pet projects) identify with individuals or entities in positions of authority, somebody will insist they be completed *pronto*. By the time the laws of nature, force of reality, or sanity has finally prevailed, resources have been copiously wasted. The tragedy is the genesis of such projects would not allow for any accountability.

The political culture (i.e., totalitarian regimes, at times masquerading as state-party democracy) and the ensuing climate of political *clientelism* prevailing across Africa allow for the kind of *drunkenness* that breeds "pink elephants". For instance, those in power would indulge in erecting a "monument" to cement their legacy, while the *politically-appointed* bureaucrats grope along to *exhibit* allegiance.

Most *vanity* projects end up being abandoned once *sobriety* prevails over drunkenness or folly. Daisy Ogutu (a Master's student from Nairobi, Kenya) posted a page on PM World Journal stating: "Notwithstanding this 'Africa rising' narrative […] while Africa is replete with brilliant, impeccable, colourful [i.e., pink?] and well written development visions, policies, programs, plans and projects, many observers point out that <u>abandoned, failed or poor performing projects are paramount in Africa and that they have even thwarted its development</u>" (Ogutu, 2021). [*Underlining added by the author*]—Politically motivated projects, not backed by a proper socio-economic rationale, often end up in the bin.

And Ghana has its fair share of "pink elephants", with even pettier forms of *drunkenness*, as this extract denotes: "The former president of Ghana, John Mahama, carried out several projects, using taxpayers' funds and loans, but he left office in 2016 with several unfinished ones. Many of the […] projects were abandoned because [his successor,] Akufo Addo believed he could outperform Mahama, in a nation where tribalism, jealousy, hypocrisy, pride, and hate, have taken over the minds of many politicians, including the president [...] If tribalism is what makes a country grow, Ghana wouldn't be saddled with such a huge debt without any justification from the administration as to what the money was spent for" (Savage, 2023)—Should projects be initiated and/or aborted on the basis of tribalism and hate?

This stance had left Ghana and other African countries in a *hangover* that later induced a fiscal failure, fiddling as they did with their citizens' livelihood, and wrecking job prospects in the process.

2. A Story of White Elephants:

The term "white elephant" is used to describe a valuable possession or gift that is burdensome to maintain but also difficult to dispose of. It comes from the tradition of the King of Siam (now called, Thailand) giving a rare white elephant as a gift to a courtier he wished to ruin, as the upkeep of the elephant was so expensive it would bankrupt the recipient. Many kings are still employing this scam.

In the world of project management, the term refers to a project (or the product thereof) that might have cost a lot of money to deliver but is not likely to produce any substantial returns, be it financially or in "operational improvements"—yet, it will consume huge resources to maintain or dispose of.

The infrastructure landscape of Africa is replete with *grandiose* projects (i.e., products thereof) that were hailed as engineering feats or marvel of the century, etcetera, but are today draining the fiscus without adding any value to the economy or to the general population. It could safely be said that those projects have a negative contribution to the socio-economic equation of their host-countries.

While "white elephants" are not peculiar to Africa, it still does not make it right that an inordinate number of them are roaming our forests and savannas; one would find them all over the continent. The Bujagali Dam (Uganda) was built in early 2000's to provide electricity and alleviate poverty, but it was expensive (US$ 1.3 billion, up from a budgeted US$ 0.9 billion—due to cost overruns and delays) and displaced thousands of people from their homes. The dam has not lived up to expectations, being plagued by technical problems, and has still not helped to reduce poverty in the region (Smith, 2015).

Some decades earlier, just next door in Zaire (now DR Congo), it was reported that the US government and American banks were funding a *one-billion-dollar* power line project (The Washington Post, 1982). The electricity was intended for the southern Katanga province, which had no much need for it, while many communities along the line struggled to access the power without expensive converter stations.

Despite being constructed with "advanced technology", the 1,100-mile Inga-Shaba power line faced multiple problems. For instance, the inverter designs using *unproven* 12-Pulse-Thyristor valves proved to be defective. Hence, the "Shaba Line" operated at a mere 10% capacity initially and experienced frequent failures by the year 2000. Consequently, the electricity did not reach the intended recipients, resulting in a repurposing of the infrastructure (e.g., communities dismantling metal towers for other uses such as beds and shovels). The project also suffered from significant cost overruns, amounting to $500 million (or ±50%)—which further burdened a country already grappling with a $4.5 billion debt.

Right now, certain African countries are facing *existential* challenges with projects that display evident signs of poor/flawed design and implementation. These ventures risk becoming overly costly to operate (i.e., provide the necessary goods and services), to maintain efficiently, and even to decommission. Somebody shall find out who the "kings" were, who *gifted* those "white elephants" to bankrupt Africa!

3. A Story of an Elephant and the Ants:

In this proverbial story, a naive elephant accidentally steps on an ant hill and the ants become angry. The elephant laughs at the ants' efforts to bite and sting him, but as the swarm grows larger, the elephant began to feel the bites and is eventually forced to flee, causing more damage in the process.

Right from the outset of any infrastructure project, the delivery team ought to appreciate that, in due course, both the works of the project (e.g., construction activities) and its products (e.g., assets, facilities created) will usually interfere with the operational and broader (i.e., natural) environments.

The trouble is that in their "*rush to get the project underway*", or even a sheer lack of appreciation of the environment in which the project is taking place or where the infrastructure will live, projects might "*put their foot*" on a community (i.e., spoil, destroy, or carry off something valuable to them). To make it worse, they will dismiss and *laugh-off* their claims, fight them in court, but only agree to listen to the other party when things have turned ugly—after more *destructions* have been inflicted.

Most countries and even regional development entities in Africa seem to care less about actively protecting their God-endowed environment (e.g., beautiful beaches, pristine forests, rare species), talk less of the livelihood of their own citizens. Why should Africa always lean over to indulge any so-called investors? Multinational mining firms and other foreign construction companies are allowed to exploit and destroy vital and highly sensitive flora and fauna features in ways they would never dare in their countries of origin/domicile, nor even in other regions of the world. Surely, Africa has a Project Governance problem, failing to align the interests of individuals, of some organisations, and of society.

"Project governance is about guiding and monitoring the process of converting investment decisions into value for the organisation, delivering the anticipated benefits—the business outcomes and benefits to intended beneficiaries [and the community at large]." (Garland, 2009)

A strong Project Governance is needed to protect the value and benefits to be derived from projects. The *rampant* predicaments of graft, larceny, and looting of resources should no longer be tolerated. It is about time "red ants" arose to protect the generations yet to come, their hills, the environment, even as Naboth told King Ahab in the Bible: "*The Lord forbid that I should give you the inheritance of my fathers!*" [1 Kings 21:4]—Somebody ought to protect our patrimony, or else there is no future.

4. A Story of an Elephant and the Rope:

This sad but familiar story tells of a baby elephant (i.e., still to grow) that was tied (by self-appointed guardians) to a rope and a stake in the ground. Despite later growing to be much larger and stronger, the elephant never tries to break free from the rope because it continues to believe it cannot do so.

Like in many other domains, it takes time and investments to establish project delivery capabilities, particularly with regards to large and complex infrastructure. In addition to engineering and build-related skills such as quality managers, or quantity and topographic surveyors, "readiness" is also required in terms of appropriate legislation, availability of bulk services (e.g., electricity, water, fuel), financial services, information and management systems, as well as supply-chain and logistics. Moreover, practical and *generational* experience is needed to *crystalise* the above into a "*readiness to deliver megaprojects*". Indeed, the more a team delivers projects, the better they would get at it.

In the main, Africa is still a "baby-elephant" player in that field; at this juncture, we do not seem to have reached a critical mass of professionals equipped and experienced in delivering megaprojects. Unfortunately, a few *premature* attempts have resulted in monumental failures and have left a bitter taste in the mouth of decision-makers. There is now a rising tendency of hiring project-mercenaries on the continent, which makes harder any "*trying to break free from the rope*". But Africa should never give up on learning and getting stronger to someday graduate to delivering our own projects.

For instance, "The much-publicized Karanda Bridge construction project which was bankrolled to the tune of US$ 1.5 million by the [Zimbabwean] government in October [2018] and was almost complete, was washed away by heavy rains that hit the province on Tuesday [10th Dec 2019]" (Murwira, 2019). Yet, just two years later, Zimbabwe *successfully* launched their first ever satellite (ZIMSAT-1) into space to boost agronomy and enhance mineral mapping; it was indeed a scientific milestone for the country (News24, 2022)—"When men fall, do they not get up?" (Jeremiah 8:4).

Thus, Africa must not recoil into coyness over a few mishaps. Professional bodies, universities, colleges, and other training institutions must continue to promote, if not provide *advanced trainings* in project management (e.g., based on Systems Thinking and Systems Engineering) that prove proper to large and complex infrastructure projects—*Africa shall break free from the rope!*

5. A Story of TEMBO, the African Elephant

TEMBO (viz, elephant, in Swahili; called ndzoku, ndjoku, ndjovu and ndlovu in other parts of Africa) was a strong and mighty elephant who regularly led his herd in the savanna. When a severe drought hit the savanna, TEMBO decided to lead his herd on a journey to find a new source of water. On their journey, they came across a tribe of humans who were also struggling to find water. Rather than fear or antagonise them, TEMBO made a truce with the villagers, promising to protect them from other animals in exchange for their help in finding water for his herd and the other animals of the savanna.

Together, they traversed through harsh terrain, battling against heat, thirst, hunger, and dangerous predators. Finally, after many days of searching, they found a hidden oasis, which they protected *to ensure it remained a sanctuary for all, both villagers and animals, to come and drink from. The animals of the savanna rejoiced, and TEMBO became a hero among them—and across Africa to this very day!*

Many organisations across the world have played (or are still playing) a leadership role in developing the art and science of project management. In addition to contributing to some form of global body of knowledge, a few of such prominent organisations are seeking to establish or enhance a body of knowledge "specific" to their regions, aligned to their culture, and to their socio-economic realities. The continued investments being made along those lines will generate returns in reducing the costs of successfully delivering large, complex infrastructure projects and, why not, in sharing with others.

This story of TEMBO the African elephant teaches us that a resolute leadership that shows empathy to their constituency and is open to learn from and work with other communities can take their fellows in a journey towards a place of salvation, a place of the project management that helps the community in their dire socio-economic needs. If TEMBO could make it, Africa will surely make it!

These "elephant stories" have sufficiently told the common challenges of megaprojects in Africa. But there is still another "elephant" to be addressed, the proverbial "*big elephant in the room*":

"*How shall Africa close these 'project management gaps' that so hinder infrastructure projects? What are the key issues and where shall our hope come from? And how do we even get started?*"

The level of project management maturity is not only lagging in comparison to other regions, but it has also proved "inappropriate" in terms of our socio-economic needs. Even when using expensively hired project-mercenaries (from Europe and Asia), it still takes longer (and costs much more) to deliver any infrastructure in Sub-Saharan Africa compared to other regions, particularly the Southeast Asia (SEA). For example, Africa pays US$ 400 per capita for water supply infrastructure, compared to US$ 200 per capita elsewhere—and US$ 0.30 per kwh for power production, compared to US$ 0.10 per kwh in similar regions.

Moreover, the steady increase in population over the last ten years or so in countries like Nigeria (from 158.5 to 206 million), Ethiopia (from 87.6 to 115 million), Egypt (from 82.8 to 102 million), and DR Congo (from 64.6 to 89 million) has markedly exacerbated the need for infrastructure (e.g., power and water supply, hospitals, schools) across the continent. To make it worse, capital to invest in infrastructure is not always readily available given the relatively low GDP per Capita ranging from US$ 9,700 for Seychelles to US$ 3,500 for DR Congo, compared to US$ 99,238 for Ireland; hence, the need to borrow at *exorbitant* costs.

For instance, African states borrow at a cost eight times higher than other countries; thus, Kenya spends US$ 5 billion each year, just to service their debt—monies that could have been invested in infrastructure. Hence, President William Ruto of Kenya denounced this "*debt trap*" during the "Summit for A New Global Financing Pact" in Paris, France. The *would-be pivotal* summit gathered several African heads-of-states, along with directors from global financial institutions like the World Bank (The New Africa Channel, 2023). While the right things were said, not much commitments for infrastructure funding were duly expressed.

Nevertheless, there shall be hope for help is on the way. A few TEMBO's have already embarked on the journey of establishing pockets of project management excellence across the continent. The number of professionals and executives from Africa (and of African descent) working in large and complex infrastructure projects all over the world is growing by the day. Also, the number is rising steeply of "*advanced topic*" books, articles and papers published in top journals, and presentations at world-class conferences, seminars, and other webinars under the signature of *proudly* African sons and daughters.

In fact, the 752 km electrified railway (completed in 2018) linking Addis Ababa (Ethiopia) to the Djibouti Port on the Red Sea is recently hailed as one of the most successful infrastructure projects in the SSA region. The well-planned, well-executed railway—thanks to two Chinese firms—has improved regional connectivity, reduced transportation costs, and boosted economic growth (Tilahun and Ferede, 2021).

More recently, high expectations were raised as to what the newly built Dangote Petroleum Refinery might do for energy supply in Nigeria and perhaps for the entire continent. Despite being the topmost oil producer in Africa (and ranked the 10th, globally), Nigeria was still importing 80% of its refined petroleum products, a large import at any rate. Thus, the country was *coerced* to providing fuel subsidies amounting to 24% of its 2022 federal budget; Nigeria had spent US$ 11.3 billion on importing refined petroleum products in 2021 alone, just to alleviate the perpetual, exasperating queues at petrol stations. This was an untenable drag on the fiscus, even stifling the ability to provide other social services (ESI Africa, 2023).

Nigeria's new Dangote Petroleum Refinery is Africa's biggest to date. It will produce 650,000 barrels a day, giving it the potential to address the country's energy supply crisis and will prove to be a significant step towards self-sufficiency in Nigeria's energy sector (despite still relying on fossil fuels, which is bad for the environment). In the meantime, it is estimated that during construction the project created jobs for 29,000 Nigerians and 11,000 nonnationals in the fields of engineering, construction, manufacturing, and operations—making a dent to an unemployment rate expected to reach 40.6% in 2023 (ESI Africa, 2023).

The two above-mentioned projects, not discounting the many others shining examples on the continent, should provide the right impetus as regards to "*leveraging on Large Infrastructure Projects to stimulate economic growth and job opportunities*"—and the provision of goods and services to our communities. In the process, many "*project management maturity gaps*" could be addressed on par with other regions. We must stand on the shoulders of those who built pyramids in Sudan and Egypt, the Walls of Benin (Nigeria), the Foumban Palace (Cameroon), and so forth.

TEMBO (our *unsung* African hero) has found a project management "oasis", and a lot has since been achieved. It is now left to Africa-based entities (e.g., PM associations, research institutes, development agencies) to consolidate what has been attained thus far and put it on a "knowledge-sharing platform" for not only African nations, but also the rest of the world to partake—for we are the mother-continent!

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Pascal Bohulu Mabelo, *MBA, MSc (Industrial), BSc (Civil), Pr. Eng, Pr. CPM, Pr. PMSA, PMP*, has more than 25 years of professional experience and possesses a wide range of technical and managerial skills pertaining to large and complex infrastructure projects. He has worked in large infrastructure projects as a design engineer, project/programme manager, project consultant and project management executive. Pascal was honoured to serve as the national chairman of Project Management South Africa (PMSA), the leading Project Management professional association in Southern Africa.

Pascal has published the book: "*Managing Engineering Processes in Large Infrastructure Projects*" (2021); he has also published, "*How to Manage Project Stakeholders—Effective Strategies for Large Infrastructure Projects*" (2020) and "*Operational Readiness—How to Achieve Successful System Deployment*" (2020). Through various other publications, he assiduously promotes the application of Systems Thinking and/or Systems Engineering principles and concept to unravel complexity in Large Infrastructure Projects (LIPs) in order to address their persistent risks of failure and their massive, even pernicious, cost and schedule overruns.

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