



OL' MAN RIVER AND THE DAM STATE: Why the High Grand Falls Dam project is a bad idea

By Paul Goldsmith



The various feasibility studies and state policy documents supporting the revival of the High Grand Falls Dam project on the Tana River conform to what economists refer to as path dependency – or how a set of decisions for any given circumstance is limited by the decisions made in the past, even though past circumstances may no longer be relevant.

The QWERTY keyboard is the classic example of this pathway effect. It was designed to prevent typewriter keys from striking each other and sticking. A clever solution at the time, the un-ergonomic keyboard survives as the default for our computers and phone keypads decades after the demise of the typewriter because changing it would create greater problems.

Conceptually, path dependence interfaces with other properties of systems such as convergence, probabilities, and the jargonistic but useful property termed ergodicity. [Economists](#) define ergodicity as the ability to eventually shake free from the influence of a past state. Non-ergodic practices, in contrast, risk the problem of becoming locked in, as demonstrated by the rapid fall of Nokia when it dismissed touchscreens as a “gimmick” and lost out on the growing smartphone market.

The path dependency illuminated by this particular case highlights a wide set of institutional practices and incentives that contribute to many of Kenya's latest large infrastructure projects. The empirical evidence demonstrating that large infrastructure projects do not benefit the poor is not a concern in President Uhuru Kenyatta's Big 4 policy environment. Rather, it's a case of "the bigger the better" when it comes to Kenya's administrative gatekeepers, tenderpreneurs, and decision makers. Endemic corruption and the ballooning national debt are consequences of this non-ergodic mindset.

Feasibility studies and invisible stakeholders

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The 2016 [Environmental and Social Impact Assessment](#) of the High Grand Falls Dam project commissioned by the National Environment Management Authority (NEMA) confirms that the majority of people that will be negatively affected by the project live in areas historically neglected by the government. The report's two-page summary of the project area's socio-economic characteristics observes that the corresponding "low level engagement has left the communities to develop at their own pace. Some of the communities in the region are very conservative and continue with retrogressive practices that are inimical to development".

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The assessment document is rich in technical details but bypasses critical socio-economic and cultural issues. For the inhabitants of Kenya's remote margins, it is the latest example of the dirigisme underpinning Kenya's post-independence tradition of social exclusion.

Whether by design or omission, the negation of local histories and indigenous knowledge traditions effectively functions to render excluded minority communities invisible when it comes to development planning. Once an area is targeted for an external investment or development project, the commissioning of the feasibility study reinforces the established trajectory without exploring the negative social implications of the environmental impacts and other related factors.

The various feasibility studies commissioned in support of the Magogoni port and the Lamu Port South Sudan-Ethiopia Transport (LAPSSET) corridor, the Roola Project Memorandum of Understanding with Kuwait that preceded it, and the study supporting the allocation of the Tana Delta land for sugar production all conformed to this model. The original Mutonga-Grand Falls feasibility study, to its credit, documented the negative environmental impacts downstream, but otherwise skirted the social and economic consequences for the local stakeholders.



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There is much to be said for sticking to what works, but the opposite principle applies in the case of the government's Expanded National Irrigation Programme (ENIP) goal of expanding the 165,833 hectares under irrigation in 2011 to 1.2 million hectares by the year 2030. Most of the land to be developed in order to meet this 600 per cent increase is located in the country's Arid and Semi Arid Lands (ASAL) zones. The performance of Kenya's large irrigation projects has not been impressive and several of them are very expensive white elephants.

The ENIP contribution to [the proposed strategy](#) is based on an in-depth study of the water resources available in the Tana and Athi river basins. A Food and Agricultural Organisation ([FAO overview](#)) of the strategy outlines the formidable technical challenges involved, such as the high level of water losses due to evapotranspiration in the reservoirs and in the channels proposed to convey water to other sites. Kenya currently uses over [69 per cent of its limited developed water resources](#) on irrigation. The share of Kenya's water diverted to irrigation will rise to 89 per cent with implementation of the ENIP-driven food security strategy, which does not factor in growing industrial and urban demand.

The High Grand Falls Dam project is the main engine of this plan that, among other things, aims to redirect water to the Galana River to ensure sufficient water for the dysfunctional Galana-Kulalu scheme that is scheduled to eventually cover a colossal 1.7 million acres. The NEMA assessment document also mentions the construction of another channel transferring water to the Waso Nyiro, but does not explain why.

The water problem is emblematic of the formidable challenges facing society across system scales. The high stakes posed by the global population-natural resource equation explain why the private sector and governments alike are extolling the virtues of innovation, disruption, and creative problem solving. The dam is, in contrast, a Red Ocean project predicated on the gigantism embraced by the Vision 2030 and LAPSSET agendas.

The larger problem with the High Grand Falls Dam Assessment Study is what is not reported, like the cutting-off of the Tana for 32 months and the consequences for the ecology and downstream communities. The study *does* refer to the increased incidence of human-crocodile conflict (their words, not mine) and includes a list of preventative measures that can be taken to reduce it, but otherwise lacks mention of any planned mitigations downstream, or the prospects for the intensifying resource conflicts that John Allen Namu documented in [The End of the River series](#) screened on NTV.

The study does, however, pay lip service to the impact on the residents of Tharaka, who were the only grassroots stakeholders consulted. The study team convened five meetings in Tharaka attended by 857 local participants. According to the document, "there is a general acceptance of the project by the majority of the communities living in the area".

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One can question the extent of the information communicated in these briefings; summaries of the discussion include miscellaneous details, like an announcement that title deeds are ready for Kamanyaki, an area that will be under water if the project goes forward. There is also no reference in the document to consultation with other communities; it renders the stakeholders in Garissa, Tana River, and Lamu counties invisible. My contacts downstream, including a local MP, verify the lack of consultation and report a general perception of confusion over the dam project.

Spatially, Tharaka is one of the most remote areas of Kenya. Its remoteness is not a function of distance, but of the area's isolation. The roads are challenging and it is not on the way to anywhere else. So the only reason you will find yourself in towns like Marimanti, Chiakariga, or Gatunga is because you have an important reason for visiting. As the Assessment Study observes, the locals have been developing at their own pace; what it does not say is that the residents of Tharaka seem to be okay with this, and are keen on finding their own solutions, like the modified female rites of passage based on piercing the ears of young girls in place of the "retrogressive" tradition of female circumcision.

Once upon a time I conducted a survey on the state of education, health, and access to water that took me to every sub-location of Tharaka. The residents at that time were highly independent and probably the most land-paranoid community in the country. The area can prosper with greater exploitation of the local rivers for irrigation, but this has been slow coming due to internal social factors linked to the use of communal resources. The High Grand Falls Dam blueprint, in contrast, requires the relocation of 4,500-plus displaced households to a large-scale irrigation scheme outside their home county.

I find it very difficult to see the residents assenting to the planned mitigations, especially without monetary compensation, which according to recent reports in the press has been scrapped due to inflated claims and other problems common to projects that require resettlement and compensation.

Maybe the lack of attention to these issues does not matter. In a study entitled [Watered Down? A review of social and environmental safeguards for large dam projects](#), the authors of one of the studies report that "the implementation of systematic procedures to reveal social priorities is still very unusual in developing countries" and that "it has been estimated that environmental and social safeguard processes derived from public consultations have been implemented in only 10-15% of new hydropower projects around the world".

A case of too much electricity?

This brings us to the objectives justifying the displacement of Tharaka households and the other social and ecological negatives that will be caused by the 32-month hiatus in the river's flow. The benefits covered in the Assessment Study are the generation of 700 megawatts of electricity, the creation of a large 5.6 billion cubic metre reservoir that the project's designers claim will be used to irrigate 200,000 hectares of cropland, and enhanced management of the river's flow to control flooding. These plans represent the culmination of the pathway beginning with the development of the Tana's hydroelectricity capacity that projected 11 dams in total. But things have changed since the project was first proposed in the mid-1990s.

Kenya's national electricity strategy seeks to diversify the nation's power sources. But hydroelectric generation already provides the greater portion of Kenya's electricity, and is subject to increased uncertainty over the long run due to factors of climate change and degradation of the country's water catchment areas.

Moreover, like the controversial coal-generated electricity plant proposed in Lamu, this latest energy investment comes at a time when the region's electricity supply is outstripping demand. Several new power sources, such as the Lake Turkana Wind Farm, the three Gibe dams on the lower Omo River, and the Bujagali, Isimba, and Karuma dams in Uganda, will add to the region's growing electricity surplus.

Kenya is blessed with an abundant but largely untapped capacity for wind and solar power, and costs have come down. The wind and solar projects now being planned or under construction at this early point in the sector's development will add another [1,000 megawatts to the grid](#). In addition, Kenya is contracted to buy [400 megawatts of power](#) from Ethiopia, but the government appears to be delaying the connection, ostensibly due to the problems of marketing the existing supply, even though in 2015 a [contract](#) to build supply lines was signed with a Chinese contractor.

The numerous problems of mismanagement and consumer exploitation that are endemic in Kenya's state-controlled electricity sector highlight the real priority, which is the need to extend connections to the large numbers of Kenyan households that do not have access. This is being addressed through a mix of off-grid, mini-grids, and connections to conventional sources.

A history of failed irrigation projects

No one contests the need to enhance Kenya's national food security. However, the prioritisation of large-scale irrigation schemes in order to justify the High Grand Falls Dam is considerably more problematic than the power generation that was the original Mutonga-High Falls project's primary driver.

The record of Kenya's large irrigation schemes ranges from poor to disastrous, sprinkled with a few qualified successes. The Perkerra, Kanu plains, Mwea-Tebere, Hola, Bura, and Galana schemes have all experienced serious problems. Even the one success story, the Mwea scheme, was on the brink of collapse by the early 1990s when it was managed by the National Irrigation Board. Militant protests by the scheme's residents who fought and defeated the police trying to block a demonstration led to the liberalisation of the Board's marketing monopsony. This was followed by the still ongoing and [controversial privatisation](#) of the scheme's land holdings.

The record for sustained mismanagement belongs to the ill-fated Bura irrigation scheme. The world's most expensive irrigation project at the time it was christened in 1977, it quickly turned into a black hole for the World Bank, the Government of Kenya, and the pastoralists-turned-farmers who settled there. Writing in 2008, three decades after its inception, one researcher described the [conditions on the scheme](#) as:

The area is now reminiscent of a ghost town. Huge water towers stand abandoned in the scrubby landscape; irrigation canals stretch across tens of miles, overgrown with thorny vegetation; and a fenced-in vehicle parking lot contains dozens of rusting Land Rovers and large farm machinery. Housing units built for mid-level project staff as well as the villas for the resident managers stand abandoned, dilapidated, and looted. Only people with nowhere left to go remain on the project site.

The former pastoralists who settled on the Bura scheme have survived as subsistence farmers

assisted by famine relief provided by the World Food Programme. They draw their water from a murky irrigation pond they share with livestock. The award for the ultimate cosmic insult, however, goes to the nearby Hola Irrigation Scheme. During the mid-1990s the Tana changed course, leaving expensive industrial pumps beached next to the old riverbed.

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Indigenous production systems developed important social risk-spreading strategies and cultural resilience for coping with climatic uncertainty and periodic but unpredictable extreme environmental events – an orientation that most developmental interventions lack. The Japan-supported Tana Delta Rice Production scheme, for example, started well but went belly up after the 1998 El Nino rains destroyed the main canals. Power surges disabled the large German-built milling complex. Rice production continued on a reduced scale and the problems could have been fixed, but the government withdrew its funding in 2001 due to massive corruption.

The last time I visited the scheme, monkeys were roaming the impressive but incapacitated processing plant while an old smoke-belching mill next to it laboured to turn the small harvest of *mpunga* into *mchele*. A number of local and international agribusiness organisations stepped into the gap by lobbying the government in order to establish sugar and jatropha plantations. A large area was allocated to a British firm to implement a biofuel scheme, but like the plans for sugar, it failed to take off due to widespread local opposition.

As one [report](#) declared, “The Tana Delta could house a museum featuring failed projects”. The report traced the poor record of top-down projects in the Tana Delta to the failure to take the local people and the environment into account. [Research undertaken by Nature Kenya](#) established that the value generated by local agricultural and livestock producers considerably exceeds projected returns to sugar monoculture and the other capital-intensive ventures.

Environmental impact on the Tana Delta

In 2012 the Tana Delta became a [Ramsar site](#), which recognised its status as one of the world's important wetlands. A [case study](#) by the International Union for Conservation of Nature (IUCN) reports that the dam's impact on the Delta will result in the reduction in the area and composition of floodplain grasslands, lowered surface and groundwater sources, loss of fertile riverbank sediment depositions, reduction in swamps, ox-bow lakes and seasonal water bodies, the deterioration of riverine forest areas due to senescence, and the degradation of the mangroves that include two species unique to the Tana Delta environment. The ecosystem hosts many other rare and endangered species, but the main casualty may be the over one million people who depend on the river's flooding regime for their livelihoods and the 2.5 million head of livestock who depend on the water and pasture. The project will also jeopardise the growing number of riverside farms in Garissa that use the river for irrigation, who will lose out when the project redirects Tana River water to the Athi-Galana in order to support the government's latest water grabbing experiment – the US\$3 billion Galana-Kulalu project.

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The Tana Delta and riverine zones are crucial dry season reserves that attract other herders from as far as Wajir and southern Somalia during drought years. Over 100,000 Pokomo depend on recession agriculture, and there are 50,000 freshwater fishermen working in the Delta. However, none of these facts have stopped the authors of the High Grand Falls Dam Assessment Study from claiming that the project is necessary for securing the productivity of land in the Tana Delta.

The record of flawed interventions on the coast, including the nearby [Magarini settlement scheme](#), did not augur well for the government's [one-million-acre Galana-Kulalu irrigation scheme](#). Observers questioned the prospects for the proposed public-private partnership when it was launched in 2014. The scheme did not disappoint. Production has been dismal, funds have vanished, and in 2016 a [group of parliamentarians](#) called for the suspension of the scheme, citing mismanagement and inflated costs. In September of 2018, [the press reported](#) that the National Cereals and Produce Board received maize valued at Sh35 million from the scheme, a paltry return to an enterprise that four years after its launch has spent Sh7.3 billion to bring only 5,000 acres under cultivation.

[Analysis](#) of the technical, administrative, and tenure-related issues besetting Magarini and other schemes in Kwale and Lamu show that they have neither alleviated the coast's land problems nor have they advanced Kenya's agricultural development. The Galana-Kulalu scheme is the latest contribution to a policy pathway littered with numerous such developmental disasters. Massive amounts of funds have evaporated under the hot African sun; and in an area inhabited by minority communities, these disasters have been a recipe for political tensions, conflict, and corruption.

Irrigation launched Kenya's lucrative horticultural export industry. Private farms are perhaps the best example of irrigation's commercial potential, but most of the produce is exported. Irrigation will also have to make a growing contribution to food security over time and prospects for expanded medium- and small-scale irrigation based on water user associations are positive. But at this point, farmers using the common *jua kali* overhead sprinklers and appropriate technologies like the ApproTec treadle-pedal pump have probably made a greater contribution to domestic food security.

Irrigation presently consumes 69 per cent of Kenya's water. An [analysis of scale, control and success](#) in Kenyan irrigation attributes the problems of schemes to bureaucratic control, and found that state mismanagement is a more important factor than scale. Expanding the unexploited potential for land under irrigation will depend upon sorting out a matrix of technological, social, and environmental issues influencing agricultural output and efficiency. The High Grand Falls project and documents supporting it do not provide answers.

The elephants in the room

There are two elephants in this room. The first is the nexus between climate change and the availability of water. A [hydrological analysis of the impact of climate change on the Tana Basin](#) indicates that levels of rainfall across the basin will increase, but so will the variation and episodes of extreme precipitation and drought. Its impact will also vary across the region's ecological zones, increasing the problematic consequences for ASAL areas. Despite the overall increase in rainfall, the authors underscore that the real challenge will be the need for those managing water resources to adapt to the new climate regime with its extremes of drought and flooding. This is a serious game changer.

The other elephant is the state. The record of mismanagement, graft, and poorly designed interventions make it easy to critique the Kenya state's record of bungling and impunity in this sector. But the fact remains, for the bureaucrats who harvest the extra allowances and other perks these projects generate, Big Water is a magic bullet that will resolve Kenya's food security equation. For the political decision makers at the top of the food chain, it is a convenient source of patronage and rents.

Although the case for expanded water storage requires a sustained long-term strategy, it is hard to take projects like the High Grand Falls Dam seriously when a Permanent Secretary goes [on record](#) to justify the project by stating the dam will form "a small lake, introducing fishing to the communities around it, and tourism". He clearly did not read the [reviews](#) on TripAdvisor about the state of the Masinga dam resort. A fraction of the dam's price tag would go a long way towards improving water security across Kenya's water-stressed regions by creating many "small lakes" where rainfall collects.

There are many other alternatives to centralised water storage. According to the author of an [Oxford University Business School study](#) of large dam projects, "Many smaller, more flexible projects that can be built and go online quicker, and are more easily adapted to social and environmental concerns, are preferable to high-risk dinosaur projects like conventional mega-dams."

Big Water is just another variation on Big Infrastructure, but with much greater potential for blowback in this case due to the number of Kenyans facing lost livelihoods and displacement. The cash-strapped Jubilee government is clearly locked into a dead-end developmental pathway that is damming up its citizens' problem-solving energies and capacity for developing social and technological solutions.

An [analysis of pathway dependency](#) offers two pieces of advice about escaping the "entrapment basin" like the one luring state policymakers and planners into the cul-de-sac reviewed here. The first is that those managing the system require external agency to change. The second is that instead of making choices that often turn out to be wrong, policy makers should improve the informational basis for choices that can be made by private parties and government agencies.

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Unlike the case in the 1990s, there is now a large base of information and analysis on the issues interfacing with the High Grand Falls project, but the dam state will need a push if it is to play a role in rationalising the process.

In 1988, [opposition to Hungary's Nagyramos Dam](#) provoked citizens to defy their Communist government for the first time, triggering the succession of events leading to the collapse of the Eastern Block governments in 1989. Maybe the High Grand Falls project will be the tipping point catalysing a coalition of local and external forces, like India's Save Narmada Movement, that will lead to a more viable policy framework for managing the Tana Basin's waters and the larger region they support.

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