IMANI: WHY CSOS OPPOSE THE NEW BIOMETRIC VOTER SYSTEM: THE FULL STORY

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Highlights:

❖ The EC wants to rip out a system worth $60 million, of which value at least $40 million has accumulated since just 2016, and spend $150 million (plus contingency) constructing a new one.

❖ A careful analysis of best practice in procuring biometric technology for elections in Africa shows that the EC's proposed spending plans are inflated by about 60%. In short, the EC's proposed system is brutally expensive compared to other countries in Africa.

❖ The EC's claims about the existing system's weaknesses are flawed and untrue because the biometric data can be salvaged and facial recognition technology already exist through visual inspection.

18 Civil Society Organisations (CSOs) operating in Ghana, spanning a range of focuses and backgrounds, were recently invited to a "briefing" by the Electoral Commission of Ghana (EC) to persuade them to support the latter's efforts to compile a fresh biometric register, replace the entirety of the existing biometric voters management system (BVMS) and spend roughly $150 million (accounting for contingency) doing so.

The CSOs emphatically rejected the EC's position based on evidence available so far.

In this brief paper, IMANI, as a member of this broad grouping, shall be laying out the key reasons for the inability of major governance and policy think tanks in this country to support the EC's latest adventure.

1. Above everything else, it is the disingenuity and complete lack of candour of the EC that is eroding the trust we in the civil society movement in Ghana have in the institution, and reducing the esteem in which we had previously held it.

   a. The EC announced a series of "stakeholder consultations" on the New Biometric Voter Infrastructure (NBVI) – our blanket term for the register, the BVMS, data centers, and middleware – in December 2019. Said program of consultations was again re-emphasised when the EC's new advisory body proposed a renewed effort to engage as many factions of society as possible. Yet, the EC actually published a tender for a BVMS in April 2019. It has already started plans to spend $70 million on a fresh mass registration exercise by June 2019. It has awarded a $6 million datacentre contract. It has already evaluated bids for the BVMS and is

planning to award the contract this month. We find this conduct highly duplicitous of the EC. **It is clear that the so-called "stakeholders' consultations" is a SHAM meant to legitimise a procurement gig that the EC has already finalised.**

b. When confronted with evidence of this duplicity, the EC claims that it has always been transparent about the procurement process. Yet, the EC never published the Expression of Interest, Request for Quotations, and/or Request for Proposals on its website. In fact, since the latest controversy over its actions began five days ago, its website has been mysteriously inaccessible.

c. A thorough media scan shows that no press communications were released regarding any aspect of the tender process. No longlist of pre-qualified bidders was published. No shortlist of successful tenderers has ever been disclosed. And no information about the tender process has been shared in the 9 months that the EC has been at this exercise. It can safely be concluded that the EC has never had any interest in any input from independent stakeholders. The entire procurement has been shrouded in secrecy and opacity.

2. This same disingenuity is reflected in the EC's central argument in favour of the need for a totally brand new biometric voter infrastructure (NBVI). Everywhere the EC has spoken, it has created the impression that the entire NBVI dates as far back as 2011 and therefore every equipment, software and data store is, to use its preferred terms, End-of-Service and End-of-Lifecycle.

a. **This is serious misinformation** since the entire NBVI was audited by independent experts in 2016 as part of the EC's strategic review of its vision and operations. No such recommendation for an end-to-end replacement of the current infrastructure was made in that report. We challenge the EC to publish that report. The decision to do so now is ad hoc and unsupported by the Organisation's strategic plan.

b. In fact, that audit report and the EC's strategic and medium-term spending plans (which we have reviewed for the years since 2012) have constantly endorsed the **CONTINUOUS IMPROVEMENT AND UPGRADE MODEL**, whereby the EC continually procures equipment and services to replace the truly obsolete equipment and upgrade and refurbish systems truly reaching the end of their lifecycle.

c. In the 2015 electoral cycle, the EC worked with its vendors (integrator, Superlock Technologies – STL, and the latter's strategic suppliers, well

known Dutch companies Genkey and HSB) to implement the "Two Biometric Verification Devices (BVDs) per Polling Station" policy, eventually deploying 72,000 new and freshly upgraded BVDs for major elections.

d. In 2016, the EC spent millions of dollars on Biometric Voter Registration services (see below) and related peripherals to support that year's elections. The EC has continually budgeted for and spent significant amounts of money running into millions of dollars every year to protect its IT systems from complete obsolescence. All the EC's procurement plans and expenditure frameworks show clearly that the policy of Continuous Improvement & Upgrading has been the organisation's strategic philosophy until the end of 2018, following the crisis that rocked the organisation's leadership that year.

e. For instance, every time a new district is created, the EC budgets for new VSAT equipment and district-level Voter Management Systems (VMS) to enable biometric and biographical data captured during registrations to be transmitted to its central data center. As late as 2018, the EC was working on implementing as many as 38 of these systems.

f. *Here is a brief extract of spending on system upgrading in 2016.*

Fig.1. The Continuous Upgrading & Enhancement Model in figures.

NO.	DETAILS	AMOUNT (US$)
8/2/2016	Supply of Biometric Voter Registration kits components & ancillary services	4,375,330.00
4/7/2016	Voter Management system Upgrade & rollout Training	1,153,174.00
5/7/2016	Preparation of BVD and Ancillary services	14,321,727.00
5/7/2016	Construction of pre-fab district offices (lot 1 & 2)	8,459,445.59
5/7/2016	Construction of pre-fab district offices (lot 2 & 4)	5,878,516.94
26/7/2016	50units Toyota Hilux 4WD double cabin	1,495,901.00
19/5/2016	Advance payment for the supply of XEROX printers for the printing of the Voters Register	137,496.00
25/5/2016	Payment of Voting Screens for the 2016 General Election	12,000,000.00

19/5/2016	Final Payment of the Biometric Voter Registration Kits Components and Ancillary Services	2,187,665.00
6/10/2016	Payment of supply of Biometric Equipment and other Ancillary Services	10,295,481.00
	Total	**60,304,736.53**

g. **It can therefore not be correct that the entire EC biometric infrastructure and associated electronic systems date to 2011, or that all the components of that overarching system are End-of-Lifecycle or End-of-Service.** Many parts of the system are new and are in sound order. This has been a major confounding trick that the EC has used very effectively to hoodwink rational-thinking members of society.

h. **If the EC is allowed to have its way, $40 million in fresh investments made over the 2016/2017 timeline shall simply be mothballed and dumped into a rubbish bin.**

i. Also, the wear and tear rate of these systems has been exaggerated through a false comparison with normal laptops and POS terminals. The thing about these BVRs and BVDs that have now captured the nation's attention is that they are *used very infrequently*, only a few times a year in fact. That's a far cry from a mobile phone, POS payment terminal or, indeed, normal laptop.

j. As things stand now, with the EC having virtually completed its procurement process for a new NBVI without any regard for public opinion, **the country would have to watch helplessly as over $60 million (accounting for depreciation) worth of technology systems are plucked out and discarded like garbage so that they can blow $150 million (accounting for contingency) on assembling a new end-to-end system**. It is important to emphasise that electoral technologies worldwide have near-zero salvage value, since there is no secondary market for second-hand electoral systems.

k. An easy analogy to help the reader understand the concern is to look at the "branchless banking network technology system" for a bank or the "intelligent network" of a telecoms operator. Though banks and telecom companies mount major network overhauls all the time, they rarely rip out the entire system and start over. They change and improve components, and thus continuously and steadily transform the legacy

platform to a "new generation" one. That is exactly how 4G was introduced into Ghana. The NCA didn't force telecom companies to rip out the entire infrastructure and implement 4G.

3. The third line of disingenuity is the EC's claims of "saving money" for the country from its actions to rip up and replace a system, many chunks of which are still in their prime.

   a. It comes to this conclusion by dangling before us strange quotes it claims it received from STL, the contractor and integrator that knocked together the current infrastructure from components supplied by its Dutch partners and other international OEM players and IP holders, such as Suprema.

   b. The point is that these conversations the EC claims to have had with STL have not been shared with anyone as they were informal correspondence. In the absence of a formal request for quotations (RFQ) for the BVDs (the equipment used in verifying the voter at the polling station) and BVRs (the equipment used to register new voters at registration centers), which are the main peripherals of the Voter Management Systems (BVMS), the EC cannot say that it has made savings by choosing to procure a new system instead of continuing with the Continuous Improvement & Upgrading Model.

   c. The EC's claims that STL offered it brand new BVRs for $5,145 or $3,500 for refurbished versions, and new BVDs for $917 or refurbished ones for $244, are a classic case of setting your own questions and answering them. If the EC had decided that the maintenance fee it was paying STL had to go as far back as November 2018 and therefore they had no need for their services as contractors and integrators (essentially glorified middlemen and mechanics), then it must have been obvious to the EC that it could go back to the actual producers of the BVR and BVD technologies armed with the results of a proper market survey based on a proper RFQ process.

   d. But the EC would have known that doing this would not have allowed it to present any savings to the public and thus that it would have lost a fine propaganda point.

   e. At any rate, the proposed pricing suggested by the EC for the BVRs and BVDs it intends to buy ($3,500 and $400 respectively), which are the main cost drivers in setting up a Biometric Voter Management System (BVMS), apart from the mass registration/enrolment exercise itself, and which it

touts as having led to savings, are actually grossly inflated if one benchmarks against several recent elections in the African region. We have provided a quick snapshot in a subsequent section.

f. But even before a regional benchmarking survey is discussed, it is useful to advert minds to an earlier EC procurement activity, in 2015, which awarded a $38 million plus contract to STL, and which inferentially **priced BVDs for roughly $222 and BVRs for roughly $3,000**. The scuttling of this order and the downward revision of the amount following a new contract in 2015 is a matter of public record.

g. A most illustrative regional case study is that of Zimbabwe's ZEC (that country's elections management body), which opened up the entire procurement process, from inception planning to vendor demos, in stark contrast to Ghana's opaque process, and ended up procuring 3000 BVRs from the Laxton Group in 2017/2018 for $1300 per kit and an Automated Biometric Identification System (ABIS) from IPSIDY for less than $1.7 million. These spending patterns, like the roughly $750 per next-generation, integrated, BVR tablet that Kenya procured for its most recent elections, or the $188 Nigeria paid for its BVDs, completely undermine the argument being propagated by the EC that by paying $3500, or even $3000, per BVR kit and $400 per BVD it is saving the country money.

Table 1. Limited Snapshot of Regional BVR Pricing Benchmarking Study

	Country	Year	Cost	Adjustment*
1	Ghana	2020	$3500**	Baseline
2	Zimbabwe	2018	$1300	-10%
3	Kenya	2017	$750	-
4	Nigeria	2015	$1770	+15%
5	Benin	2010	$2768	-10%
6	Sierra Leone	2011	$2831	-15%
7	DRC	2005	$2500	-20%

*Comparisons are adjusted using a USD inflation index, volume and specification factors, and a risk component. This analysis is outside the scope of this brief paper.
**Some officials have also quoted $3000, adding to the confusion.

h. **If the EC adjusts its planned procurement spending pattern to suit the best practice in the Africa region, it can save at least as 60% of its projected expenditure on the BVMS. These are the true potential savings the EC dare not consider.**

4. Equally misleading is the constant reference to "facial recognition technology" (FRT) as a major, novel, comparative advantage of the "complete overhaul" strategy versus the "continuous upgrading" alternative. The claim that the current Genkey ABIS cannot handle FRT is based on a sad misconception about what FRT is in electoral management around the world. FRT in conventional electoral technology terms is merely the instant retrieval of the facial photograph of the voter upon identifying him or her following successful authentication, whether by biometrics or another method.

5. In that regard, as far as the electoral technology domain worldwide is concerned, most ABIS platforms like the current one in use in Ghana have FRT capability, including for image de-duplication. What the EC is proposing to add is an automatic detector, instead of relying on human visual inspection. This add-on is a software auxiliary since the imaging peripherals already exist in our current architecture.

6. Likewise, it is not true that in a context where fingerprint technology is not 100% accurate, the appropriate backup technology for voters whose authentication is mishandled by the fingerprint system is facial recognition, a less *persistent* form of biometric technology. Because faces alter more frequently and easily than fingerprints, it would be pointless to use automatic face detectors as the backup. A more persistent characteristic, like iris scans, as used in Somaliland, would be the appropriate backup mechanism since any failure of the primary authentication mechanism must prompt an *escalation* of accuracy matching not the reverse.

7. Furthermore, the EC's argument that the last district elections witnessed a 0.64% false rejection rate (proxied by manual verification) and that this is bona fide proof of a deeply flawed system has been widely derided since a 100% matching accuracy is simply impossible with today's level of technology.

8. We proceed to add that there is no absolute benchmark for what the false rejection rate should be since it is partially based on what false acceptance rate (the percentage of people with a less than perfect biometric match being accepted by the system) the EC is willing to accept. We note a number of US National Institute of Standards & Technology (NIST) vendor contests where setting the false acceptance rate to a low of 0.1% increases the false rejection rate (the system incorrectly rejecting a voter with the right biometric credentials) to a high of 1.97%. Another study, this time of Indonesia's mandatory national ID system (e-KTP), found that setting the false acceptance rate to an even more stringent 0.01% raises the false rejection rate to a rate as high as 3%. The situation is particularly acute when only one fingerprint is being used for the verification, no matter how many fingers were scanned during registration.

9. So not only is the current false rejection rate in Ghana's BVMS, as reported by the EC, far from alarming, but the process of containing it is partially based on calibration, for which the EC must set a policy.

10. The other trick the EC has effectively used to secure political support, especially from the NPP, is to make it look as if the collation of a new biometric register is necessarily conjoined with the procurement of tens of millions of dollars of new equipment (BVRs, BVDs and VSATs especially). However, one can perfectly conduct a new mass enrolment of voters using the current infrastructure, with the usual periodic upgrades duly observed, and one can choose to replace a whole host of peripherals, including BVRs, BVDs, and VSATs, without touching the biometric register. *(VSATs- small telecommunication equipment that receives and transmits real time data via satellite).*

11. To this self-serving end, the EC has refused to entertain the plain truth that the Genkey, the ABIS developer, is a member of the International Biometrics & Identity Association (IBIA) and a major proponent and supporter of the CBEFF framework (and its derivative ISO standards like 19785), all of which are designed to enhance portability of biometric template data. In short, the existing biometric data can be used with new client-side hardware and new server-side applications.

12. At any rate, even if one has a concern about the biometric templates generated by the vendor, in this case Genkey's, equipment, one can rely on protocols like Wavelength Scalar Quantization (WSQ) to regenerate new biometric templates from the original images in the EC's image archives, thus freeing one to implement one's preferred new fingerprint matching algorithms.

13. Nor is the EC's insistence that operating systems on the distributed equipment, the BVDs and BVRs, cannot be upgraded truthful or even logical. Linux and Windows solutions do not belong to HSB or Suprema, the developers of our original key peripherals, the BVDs and BVRs. They have merely licensed windows and linux for use in the equipment. Nothing whatsoever impedes Ghana from procuring Windows and Linux licenses for its devices. Both Red Hat and Microsoft have many vendors who would be more than happy to oblige.

14. When the EC's leadership laments the way the existing system was set up and bastardise it, they forget that many of the key technical people (including at management level) who took these decisions, as well as dozens of IT officers who have been there since the beginning of this whole biometric turn are **still the same people on the frontline managing this sham transition**.

15. Much of the talk of "vendor lock-in" and vendor malpractices is quite irrelevant since the EC, as at last disclosure, has spent over $350,000 on consultants to improve the EC's ability to manage the existing system and do so in-house. Surely, those fees should be earning Ghana something!

16. Remember also that the much maligned STL left the scene as far back as December 2018 and since then at least 4 major electoral exercises have been conducted entirely by the EC's own staff. This is like no other "vendor lock-in" situation any of us has encountered before!

17. Another sleight of hand argument the EC uses to distort the concern about the need for another mass registration exercise even if the EC wishes to overhaul the software and hardware, is the claim that a limited registration exercise shall cost more than the $70 million it is proposing to spend on the mass registration exercise. This is strange beyond measure. The EC says it believes the maximum size of the register today should be 17 million people. There are already nearly 16 million on the register. A limited registration exercise would thus register at most a million and a few hundred-thousand people. The logistical and labour requirements of registering 17 million people afresh, or even asking them all to go to a registration station to augment their existing record can never cost the same as the requirements for registering 1 million people.

18. A quick way of benchmarking this is to weigh the limited registration exercise of 2014, where $10.6 million was spent, with the $70 million the EC is claiming shall represent a major reduction in expenditure. In some of the EC's comments it has, rather naughtily, conflated multiple expenditure items with the actual registration costs to create the impression that the limited registration exercise which took place in just a little over 3000 registration centers around the country in 2016 cost over $85 million (GHS 487,998,714.00) to deliver, which is completely inaccurate. The entire 2016 elections itself cost $88 million, and the separate registration budget we have been able to establish cost less than $20 million. **The proposal to spend $70 million on just mass registration is thus utterly preposterous.**

19. The EC has made many excuses why it cannot collaborate with the NIA to jointly collect data in order to save cost. Thus, though we are spending $124 million on the NIA in the initial phase (in 2018, allocations to the NIA matched allocations to the One District One Factory - $35 million) and roughly $20 million a year for the next couple of years, Ghanaians are being asked to stomach more of their hard paid taxes being pumped into queue-creation hysteria in the name of a fresh biometric register.

20. The EC's claim that data from the NIA and colocation in NITA-owned, not necessarily controlled, datacenters shall all compromise its perceived independence and political neutrality, yet it does not mind using the state security services to protect sensitive electoral assets and apparatuses. In the same way that the security services are trusted to operate within the electoral context provided party observers are provisioned for, same logic can be applied to enable the EC benefit from the firm assurances made by the NIA to supply data and NITA's existing mandate to provide base infrastructure for public sector computing. All that the EC has to do is find creative ways to apply just a fraction of the money it intends to spend on building greenfield infrastructure to more permanently embed party observers in all its various processes.

21. We would however like to urge the NIA to update its business plan as it is plainly obvious that the liquidity projections made by its PPP partners (including the expected earnings from the NHIA alone of more than $420 million over 15 years) shall not materialise and thus a new framework of engagement is required and that same must be brought to Parliament for ratification in light of clear evidence that the financing model of the National Identity infrastructure must urgently evolve.

22. The EC has made much of the massive risk inherent in being asked to continue with a system it does not feel comfortable with. Our parting shot is that its anxieties are superstitious. Since 2012, when the biometric infrastructure was first used, the quality of elections has actually improved. In fact, it was when the system was introduced afresh that it had the most problems. 33% of all polling stations experienced challenges with the BVDs, and hundreds of polling stations had to prematurely terminate the elections and continue the next day after the devices had been recalibrated. Hence, there is far more risk in implementing a brand new system, to which such widespread opposition has been expressed, than in augmenting a mature system that has delivered more than a dozen major electoral activities and been tested and probed from every conceivable angle.

We can only hope that there are still influential people in this country for whom values and principles, such as the safeguarding of the national purse and the prevention of the abuse of administrative privilege and discretion, remain sacrosanct.