

UNDERLYING LESSONS FROM IGNORED INNOVATIVE MOSQUITO/MALARIA CONTROL DEVICES FROM THE UNIVERSITY OF NIGERIA, NSUKKA

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ABSTRACT

Controlling mosquitoes translates to malaria control and alleviation of associated impediments practically. Current controls are ineffective so local researchers develop alternatives but authorities refuse uptake. S/o channel/grip devices are innovative house screening approach from the University of Nigeria that are not up-taken despite confirmed numerous attractive qualities. The objectives here were to rehearse experiences of the researcher to unveil lessons that help prepare researchers for gains/losses ahead to manage the consequences of innovations and to prepare policy makers to turn a new leaf. Experiences of the researcher were captured non-formally from his numerous encounters during exhibitions of the devices, seminars, discussions and interviews with interested parties, professionals, policy makers and chief executives. Outcome revealed mixed reactions to the new devices which ranged from strong enthusiasm to resounding contempt. Inhibitors could be inapparent or vocal. Infertile environment for innovation uptake, unhealthy team players, inadvertent anti-individual policies of relevant institutions and insidious imperialism are other impediments to innovation uptake. Finally, effective mosquito/malaria solutions developed by native researchers are not up-taken because stakeholders preferred the status quo out of fear of losing pecuniary benefits. To halt and reverse the trend of mosquito borne diseases, stake holders must carefully examine/re-examine the evidence/output of relevant home-grown researchers like the utility of s/o channel/grip devices and do the needful. In the crises ridden healthcare sector, governments should adopt mono-profession or no significant difference in salaries principle. Legal instruments are required to enforce mosquito/malaria control by insect-proofing all private and public buildings with effective screens.

Keywords: Mosquito control, Malaria control, S/O channel/grip device, Window screening, Innovation

INTRODUCTION

Mosquitoes are common biting insects and the most popular belong to the *Anopheles* species (Ekpenyong and Eyo, 2006; Anderson *et al.*, 2014). In Nigeria, the principal malaria vector is *Anopheles gambiae s. s.* (Okwa *et al.*, 2007). Mosquitoes enable quick person-to-person transmission of not only malaria but also yellow fever, West Nile fever, Chigunkunya virus, Bancroftian filariasis and Zika virus among

others (Ogoma *et al.*, 2009; Uttah, 2013; Karwowski *et al.*, 2016). *Plasmodium* is a definitive parasite of mosquitoes and man and other animal hosts pick the infective forms of the protozoa during blood meals. For other diseases, mosquitoes could act as reservoir or mechanical vectors which they pick up during their daily chores. Also, mosquitoes directly impede learning because of distraction and irritations they cause thereby engendering suboptimal education thereby enhancing

poverty. Therefore, if they are blocked from contact with hosts with nets, it translates to controlling all mosquito vectored diseases and provides significant alleviation from poverty practically.

Mosquito/malaria is endemic in South East Nigeria and poses the greatest health challenges (Eze *et al.*, 2014; Uchenna *et al.*, 2018). Malaria is caused by *Plasmodium* species; the less virulent/prevalent species are *Plasmodium vivax*, *P. ovale* and *P. malariae*, while the dreadful version of the disease in sub-Saharan Africa is caused by *P. falciparum*. The disease is characterized by symptoms such as headache, abdominal discomfort, fatigue, lethargy, anorexia, muscle or joint pains and malaise, while measurable signs include fever, cold, perspiration and vomiting (Filmer, 2005; Ekpenyong and Eyo, 2006; Owumi and Raji, 2013). A common sign which is not usually acknowledged in literatures is waking up with unusual foul-smelling mouth with copious whitish debris on the tongue. Owumi and Raji (2013) tell us that malaria could be over-diagnosed because of shared symptoms with other diseases. Clinical report of malaria worldwide was put at 241 million cases, while death owing to the disease was estimated in 2021 to be 627,000 with 96 % occurring in Sub-Saharan Africa (WHO, 2021). Murphy and Breman (2001) stated that other problems associated with malaria represent key medical, public health and research challenges which contribute to more than twofold of the death that is commonly recognized. Malaria pathogenicity in man appears to drown the poverty, morbidity and mortality of the others combined (Gallup and Sachs, 2000; Uchenna *et al.*, 2018). Malaria imposes two categories of costs: morbidity and mortality costs – the former concern the families' wellbeing and decline in productivity, the latter represent permanent losses to households of future income, investments and lives (Owumi and Raji, 2013). Recurrent illnesses and high death tolls are ways malaria exacerbate poverty. In fact, up to 5.4 and 3.4 days are lost due to severe and mild malaria respectively by school children and treating malaria may take up to 34 % of total income of a household not to talk of other costs

such as loss of lives, brain damage, direct/indirect cost and other long-term effects (Murphy and Breman, 2001; Akazili *et al.*, 2007; Nankabirwa *et al.*, 2014).

The challenges posed by mosquito/malaria prompt researchers in the region to rise to the occasion through research and innovations. From the University of Nigeria and other parts of Southeastern Nigeria, there had been many extant innovations and recommendations (Ivoke *et al.*, 2009; Njom and Eze, 2011; Nnamani *et al.*, 2011; Ivoke *et al.*, 2013; Dibua *et al.*, 2013; Eze *et al.*, 2014). Okumu *et al.* (2010), Okumu *et al.* (2012), Menger *et al.* (2016) and Sternberg *et al.* (2016) are among few other innovators from other parts of Sub-Saharan Africa. Their novel ideas and recommendations had been ignored and unimplemented by authorities charged with the fight against mosquito/malaria. Specifically, carpeting development in mosquito/malaria control in this way appears to be more pronounced with respect to house screening. The s/o channel and grip devices are house screening innovations from the University of Nigeria, Nsukka (Ugwu, 2011; Ugwu, 2019) that had resoundingly suffered neglect by those who are supposed to promote them for the wellbeing of the people and liberation from the menace of mosquito/malaria in the region and beyond.

The s/o channel and grip device simplifies hoisting nets across houses' openings such as windows (Ugwu, 2011). It was also proposed that they be applied on doors, vents, eaves, ceilings. Subsequent modifications were made such that screening of under-tree classrooms or any other open spaces or applying the device as part of the buildings during construction are possible. The devices made hoisting of nets in high rise building riskless because screens could be placed on windows without the need for scaffolds or ladders. Moreover, nets can be de-hoisted and mended at any time without compromising its integrity unlike the traditional placement of nets with wooden battens which usually condemn both materials when any change is attempted. The devices also allow nets to be conveniently removed for purposes of washing to remove accumulated dust which hinder the aesthetics of

window nets. Despite these advantages, institutions/authorities and those in position to drive mosquito/malaria control measures continue to ignore this particular innovation.

This study shares the innovator's experiences while trying to convince authorities to adopt the devices as one of the simplest means of exerting mosquito control. Though captured in anecdotal accounts, this study seeks to abreast the public with the innovation so they can be better informed to enhance their well-being from a bottom-up perspective rather than depend on leader/institution with vested interests. It further unveils the obstacles researchers would face in their struggles to innovate or ensure uptake of their innovations so they can be well informed in advance to manage every outcome of their work as well as stimulate policy makers to reconsider their attitude to innovation. However, the reader must sift other information therein because unreeling life experience is often a kaleidoscope.

MATERIALS AND METHODS

The researcher produced samples of s/o channel/grip devices (Ugwu, 2011) and exhibited them during product fairs within and outside the University of Nigeria, Nsukka, during which time he discussed the devices with participants (Figure 1). He also participated in conferences and entertained remarks and questions from participants. Contacts were also made to introduce the devices to prominent persons who could influence the application of the devices in public buildings and in communities within the scope of their influence. Authorities/officials from educational and health ministries were thus contacted. Some of them were also invited by the researcher to participate in seminars designed to enlighten them. Also contacted were civil engineers, town planners and other professionals in the building industry all of who witnessed the exhibition of the devices and participated in the seminars. A foreign office directly involved in mosquito/malaria control projects was also contacted. The informal perceptions and opinions of the foregoing coalesced to form the tips shared

here. Google search of related publications via the internet was used to corroborate findings and sentiments from subjects. However, names of subjects and addresses would remain with the author.

RESULTS AND DISCUSSION

Promoters and Inhibitors of Innovation: In the present report, the investigator's interactions with some authorities revealed a mixed reaction: from profound optimism to glaring contempt to the researcher and his innovations. Studies indicated that authorities could either foster or raze innovation based on their own behaviours (Kadam, 2015; Moolenaar *et al.*, 2010). The middle course was constituted by authorities who promptly deleted every positive proposals /discussion associated with the innovation, probably as a result of the work pressure or aging and associated memory loss because those contacted were about 60 years. When the underlying principle of the channel which depended on letter S serving as both hook to trap screening net and as support base that anchored the device on window frame/wall was explained to a primary contact, the response was optimistic and spontaneous in that it promptly led to a secondary contact, a chief executive. The latter had a keen ear and accepted the idea entirely, swiftly rewarded and encouraged the innovator with the notion that the novelty holds some potential that could further uplift the innovator and also attract glory to this chief executive's institution. This chief executive's reactions towards the innovator supported the finding of Isaksen and Akkermans (2011) that leaders who anticipated innovative results from his employees achieve that through the creation of enabling environment such as role modeling, stimulating knowledge diffusion, providing vision, showing support for innovation, and providing resources. In this context, the researcher's primary contact and the chief executive typified translational authorities (Moolenaar *et al.*, 2010) who could smell innovation when they encountered one. Such are the hands required to drive novel ideas that can enable sustainable mosquito/malaria control as well as lift vulnerable people out of poverty.



Figure 1: S/O Channel/grip devices. The top two shows that the channels could be used to cover both traditional louver and modern aluminum sliding windows. The lower pictures show that artworks depicting cartoon, humour, slogan, etc. could be displayed on them: left – the print on coarse net (plastic nets with large hole size) is not sharp compared to fabric net (the remaining two); middle – shows needle work; and right – shows un-mounted artwork on fine holed fabric net

Opting for innovation is to invite conflict (Buekens, 2013). This is so because some subjects would opt for the *status quo*. Only transformational authorities challenge the *status quo* (Moolenaar *et al.*, 2010). Thus, the initial euphoria soon was extinguished by other bigwigs whom the researcher confided in and who were supposed to assist him but chose to resist any change. One branded the researcher as 'too stubborn' for catching him with a model of the s/o channel/grip device in his hand after he was directed to concentrate on paper publication. This subject thereafter seemed to have mobilized a formidable band of inhibitors against the researcher thereby impeding the refinement of the s/o channel/grip device. The s/o channel/grip device consequently remained in this crude forms for many years. They ensured the researcher was sufficiently distracted with trivialities. This group was clearly

more than ordinary innovation inhibitors who may be acting naturally on fears or risk associated with innovations generally (Kadam, 2015). In our environment, they are referred to as the PHD – pull him down. Another shade of inhibitors applied techniques that were difficult to fault. One of these befriended the researcher and used such intimacy to admonish him to forget the device and reiterated the significance of publishing one's master and doctorate theses because promotion in the academia is skewed in favour of volume of published works not on innovation that usually emasculated the innovator. This position, the researcher eventually found out, to his chagrin, was the impeccable reality in the University of Nigeria, Nsukka.

Inapparent and Vocal Innovation Inhibitors: Subjects encountered above

appeared to be categorized into two broad groups – just like malaria which presents clinically and sub-clinically (Adebo *et al.*, 2015; WHO, 2021). The former had been discussed earlier. In the later (also called asymptomatic malaria), sufferers may not consider getting assistance from health care providers because they do not manifest typical malaria symptoms so they engage in their normal daily routine works. Such subclinical cases provide nidus for recurrent infections such that the disease continues to exist in a given population all the year round or in arrested forms (Chen *et al.*, 2016). Metenou *et al.* (2009) indicated that helminth and malaria co-infection could protect against severe malaria, so the scenario reinforce asymptomatic malaria. This condition could be accompanied with sheer nuisance from mosquitoes. Their intermittent jubilatory noises, intercurrent bites which provoke irritations and scratches make sleep impossible. Thus, victims gradually become cachectic, irritable or develop other long-term complications that may include cerebral malaria and related neurological sequelae (Murphy and Breman, 2001). Malaria in the region had been allied with other infections such as HIV, helminths, tuberculosis, etc. (Hotez *et al.*, 2006; Pedersen and Fenton, 2007; Metenou *et al.*, 2009). Such supplementary secondary infections additively push sufferers into poverty and as well become the albatross that enmesh them continuously into sustainable poverty (Gallup and Sachs, 2000; Filmer, 2005).

Inhibitors subject innovators to hardship beyond description. Subsequently, the researcher lack support, funds and technical knowhow, access to state of the art equipment, etc. which this author also received more than a fair share. This appears to be so because it is yet to become our culture for entrepreneurs to drive innovations (Kadam, 2015). Other immeasurable stumbling blocks were some researcher's confidants' capricious volte-facing which threw him into endless cycles of dangerous psychological tortures and mood swings. Some used family ties to pressure the researcher to abandon development of the devices. They used the researchers scavenging for scrap metals as evidence of mental

derangement. "Which sane academic behaved that way?" they asked. The recourse to scrap materials was an adaptation to cope with lack of funds and other deprivations. Though inhibitors could not stop the researcher, they succeeded in unsettling him, interrupting development of the devices for many years and effectively blocking avenues for sourcing funds or help in other ways during those periods.

The reactions of inhibitors and promoters in this case intrigued the researcher. The primary and secondary contacts (referred to above) never saw the device at the time they took action to support the innovator. In fact, till this moment of writing, the secondary contact (chief executive mentioned above) had not seen the device. On the contrary, inhibitors of the innovation saw and beheld the devices. This scenario reflects the wise saying in the locality that a man with vision could see further, sitting down, than one who climbed the tallest palm tree.

The researcher once schemed to have students' hostels and the administrative block windows in the University covered with nets hoisted with the devices (Figure 2). This also met a stiff wall as he was rebuffed. A key official considered hoisting of nets on widows of high-rise buildings without scaffolds "impossible suggestion." One avid inhibitor said to the innovator, "Do you consider yourself a researcher? How can you? Because you collected scrap pan and folded it?" This diatribe had a devastating effect on the researcher and he groaned for weeks. Nevertheless, he triumphed over the setback. But that put paid his desire then to apply the innovation not only for screening nets but also for art display in houses and extension of the scope of muralists (Figures 1 – 3). That the researcher usually arrested after bouts of disappointments was not totally disadvantageous. Actually, they also signified moments of change which is the major theme of innovations. Those periods transformed to moments for prayers and deepening of the vision to have all houses made insect proof so as to ultimately push mosquitoes to alter their behaviour. Thus, more options emerged such as s channel that gripped at both ends and later the inverted s channels. In short, more options are still possible and are in various stages of development.



Figure 2: An artist impression of the 2008 National University Games. The relief artwork could be captured in fabric-net and hoisted with the s/o channel/grip devices to screen the administrative block against mosquito vectors



Figure 3: House screened with s/o channel/grip devices. Decoration and artwork could be added to netting materials

Innovator Comforters: During the assessment of the inverted version of the channel (Ugwu, 2019), participants who consisted of diverse professionals including engineers and town-planners, were enthused by the devices' uncomplicatedness and appreciated it very much. One engineer who doubled as an educationist first used the term "pressure pipe" to describe the principle behind the gripping effect of the net at the distal end of the channel with the small o plastic/rubber cylinder. Most of them also agreed with the researcher that many materials could be used to construct the channels and that hoisting or removal of nets

would not pose significant challenge. Some noted that artisans could reproduce the channel perfectly with little training. They were also of the opinion that affluent people can use expensive and durable material like bronze, copper or brass to make these channels. There was agreement that the channels could be cheaply made with plastic to make them much more affordable. They admitted the device could further be refined to permit other embellishments which could meet other needs beyond screening out mosquitoes such as use for advertising or for building larger tents suitable for refugees or internally displaced persons' camps. They agreed that it was capable of hoisting any type of net across houses openings although they observed that metal nets would present problems and might require higher gauge sheet metal and "pressure pipes." Civil engineers did not envisage any difficulty in incorporating the device in any kind of building not minding whether it was a new or existing building. Not a few expected the device would create wealth for the youth and a number of artisans like tailors, weavers, welders, painters, etc. Owing to the multiple potential of the channels, many artists and sign writers

could add professional touches to images and artworks that could be placed on house screens beyond those displayed in Figure 2.

Health professionals confirmed the devices' effectiveness and ease of application for keeping insects out of houses (Ugwu, 2019). However, those concerned with insect vector control insisted duty dictated giving bed net distribution pre-eminence. During preparation for one of the seminars on the novel channel/grip device, officials responsible for vector control at the ministry of health were invited. They were apparently happy with the development of the novel channels and they promised not only to come for the seminar but to also inform their boss who would contact the researcher to explore avenue for immediate deployment of the device to the people. Eventually, none of those official attended the seminar neither did their boss contact the innovator probably due to collective amnesia. Rather, those who attended were officials from the education sector who expressed delight that the devices hold some promise in insect-proving nomadic and under-tree classrooms. Of course, since then, the researcher had not heard from them. Obviously, they too had been overtaken by amnesia. When feedback was sought from one of the states' ministry of health, one official told the innovator point blank, "Your devices sounded interesting quite alright but I am paid to control mosquitoes with bed net not window screens..." Obviously, this could be the dominant reason they ignored the researcher and his innovation. Thus, professional groups consisting of younger population are more likely to assess innovations positively; however, they may not have enough authority to sustain uptake of innovations or alteration of existing policies.

Infertile Environment for Innovation

Uptake: Once, the researcher was given the opportunity to showcase his innovation to senior workers of a hospital with the help of the medical director. After the exhibition, one of the doctors told the researcher, "The device will surely put sand into pharmacists' garri and they will surely come after you." As the researcher was leaving the premises, he met a nurse

acquaintance who was absent during the exhibition. She was displeased because she thought the director deliberately did not invite her or her professional group which was untrue because some other nurses witnessed the presentation. The complainant obviously thought the researcher brought money to be shared and the director chose those he liked while denying others. The researcher had to explain that there was no such thing.

This episode unveiled the mutual suspicion inherent among professionals in the health team. Such unhealthy team players cannot achieve set goal because every move by one group would be misinterpreted by the other. Eme *et al.* (2014) highlighted the indicators of ailing Nigerian health sector such as: patients were burdened with long queues, inconvenienced by being mandated to buy everything such as syringes, drugs, hand gloves, disinfectants, detergents, electric bulbs, etc. as well as being subjected to high mortality rate; hospital workers were understaffed, paid pittance incongruous with high level of stress and exposure risks, health sector deeply fragmented; health centres were bedeviled with inadequate infrastructures, outdated equipment/facilities, absence of medicaments, lack of steady power, good roads, emergency medical services, absence of modern facilities, spatial inequality of health facilities, no medical presence, proliferation of isolated private practitioners; administration were riddled with paucity of funds, embezzlement by corrupt officials, maladministration; political leaders encouraged lack of faith in the Nigerian healthcare system, inculcated the culture brain drain and government sponsorship of medical tourism, among others. The foregoing compendium has nothing positive about the sector as it is a typical fruit of corruption. No wonder the sector is bedeviled with arrogance (McFubara, 2018), unprecedented levels of inter-professional rivalry (Omisore *et al.*, 2017) and strikes (Akinyemi and Atilola, 2013; Oleribe *et al.*, 2016; Okonta and Okonta, 2018) which imposes other costs plus undetermined death toll so far. It seems a puzzle, a miracle that we still have something to show for health centres, hospitals and teaching hospitals giving us the hope that redemption is possible if the needful is done.

Inadvertent Anti-Individual Policy: Well intended policy could end up achieving the opposite effect. This was the case with a foreign agency which was then committed to public health improvement in Nigeria. Her office existed in one of the South Eastern States. So, the researcher did not hesitate to approach the director to consider the use of the channels among the materials that were supplied to governments and non-governmental organizations by this particular agency. The researcher wanted the agency to widen the scope of their advocacies to include s/o channel so that natives could have alternatives. The director hastily dismissed the researcher with the remark: "We do not deal with individuals." This of course was another incident of throwing out the child with the bathwater. The researcher was irritated because of this refusal to grant him enough time to explain his intentions. The incident unveiled the irony as to why an organization which spent millions of dollars on mosquito control for years without significant result could not seek alternatives that will be simpler and cheaper. This may reflect a popular cliché: if workers would complete their work hastily, they would become unemployed at the same rate. This ineluctable reality plays out in commerce and industry, and between Chinese goods and identical ones made in Western Europe or America. Traders prefer marketing Chinese goods because their customers are always coming back to buy the same item again and again thereby incrementally raising their profits. But if they sold superior goods, buyer never come back to buy the same item again thereby stagnating their profits. However, it needs to be emphasized that humans are not commodities to be bought and resold: everything associated with human lives must be jealously guarded by following ethical procedures even in all mosquito/malaria interventions.

Insidious Imperialism: The notion that WHO should be the primary driver of the s/o net hanger was mooted by a reverend gentleman who identified the primary contact above whom he believed was working for WHO. But it was disappointing to learn that the organization that

was supposed to keep track of every development in controlling diseases vectors globally would look elsewhere and watch poverty enhancing diseases devastate the estate she was supposed to cater for. This negligence accounted for the reasons why new findings would not get to target population. That is, the WHO is supposed to contact innovators to explore ways of applying their findings quickly to maintain health equity. Long before the first paper on s/o channel/grip devices was published in 2011, attempt was made to reach the secretary general via the researcher's former hacked email. The only reply was via a reply machine stating that the secretary was not on seat because he travelled. Next the innovator tried to get into the WHO's Malaria Advisory Committee. Needless to state the obvious since his contribution was centered on house screening. Since that publication till date, WHO took no notice of the devices.

Recently an abstract on research which evaluated the perception of inverted s/o channel/grip device was sent to a WHO journal. The recipient replied that the abstract was so interesting and requested for the whole paper. When the whole paper was sent, the next reply was that the paper was "far above" the capacity of the journal. If a paper on mosquito/malaria was "far above" an agent of WHO to publish, what type would come within the purview of this world body? The fact is that the paper had faulted the extant WHO priority of indoor residual spraying and insecticide treated bed nets as primary malaria control (Ugwu, 2019). Apparently, WHO surrounds herself with impenetrable wall when anyone tries to advance the course of house screening.

If one is not yet convinced of WHO's deliberate disdain for house screening, her annual publication, World Malaria Report 2014 – 2017 and a framework for eliminating malaria (WHO, 2017) regretfully left out house screening. Even her annual report for the year 2021 also had no room for house/window screening (WHO, 2021). Walker (2010) had cried himself hoarse campaigning for elevation of house screening to the status of bed net. Why does WHO ignore house screening when she knows Sub-Saharan Africans dislike the use

of bed nets for reasons given by various researchers (Pulford *et al.*, 2011; Galvin *et al.*, 2011; Egrot *et al.*, 2014; McLean *et al.*, 2014)? One may not look far enough to proffer answers. The novel channels would divest economic benefits from foreign manufactures and transfer them to local artisans. Change to the novel screening method would transfer wealth and know-how to natives of Sub-Saharan Africa. It would also engender the development of local content in anti-mosquito/malaria technology like the use of natural net from palm trees to be employed in window screen (Ugwu, 2011). This state of affair appears not to suit some interested persons who would prefer that the *status quo* in the region continues so she would depend on developed nations *ad infinitum*. Therefore, to change the poverty equation of the region, the caution from Marmot (2005) that organizations should have one fundamental creed: policies that impede human health need to be identified and, where possible, changed. Giving impetus to house screening the way bed nets had been for decades will reverse the trend of poverty in Africa. Powerful institutions such as WHO should reconsider the plea of researchers who had revealed the obstacles to bed net use and change her perception of innovations from Sub-Saharan Africa because he who wears the shoe knows where it pinches him.

Conclusion: Innovations connote introduction of changes which provoke reactions which may be supportive or not. Authorities who are supposed to uptake innovation are afraid of altering the *status quo* because they may have vested interests, amnesia, pull-him-down and reject-the-message-and-messenger attitudes. In addition, those we look up to for authoritieship, may lack actual executive and implementation powers because they themselves may be following directive of higher authorities. The team that should be in the forefront of mosquito/malaria control have poor inter professional harmony so are not well motivated to uptake novel mosquito/malaria control. To engender a prospective future, children must not be encumbered with higher rates of mosquito borne diseases. The way to go is

controlling mosquito/malaria by applying the output of researchers on ground like the application of s/o channels/grip devices. The deplorable health challenges in Nigeria are signs that the set of existing societal provisions ought to change. This can happen if the health sector is modeled as in the game of football where success/failure of a member represents success/failure of the whole team. We can achieve this by one of two drastic measures. First, governments must excise permanently inter-professional rivalry not only in this crucial sector but across the civil and public service by applying no significant difference in salaries and wages. That is, the president, ministers, governors, teachers, doctors, judges, nurses and what have you should earn nearly the same salary per month. This will ensure equity and promote recruitment of only those who derive joy doing the type of job they opt for. Labour unrests began and are refueled when wage disparity between civil and public (politicians) servants became stupendous. Secondly, it is inevitable to phase out paramedics/middlemen in the health sector so that we have a *mono-profession*. That is, our young ones who aspire to work anywhere in the health sector must be doctors who should sustainably undertake mosquito/malaria control and other diseases and must not be allowed to go on strike for whatever reason. Lastly, the time has come when the trends in diseases and vector management must be challenged with local technology. To halt and reverse the trend, all stake holders in public health must carefully examine/re-examine the evidence/output of relevant home-grown researchers especially the utility of s/o channel/grip devices. Thereafter, the people have to be mobilized to know and apply these findings in their homes. Since the present novel methods enable everyone to have access and apply them, public health monitors would not have problems of contravening offenders because screens are applied exteriorly to buildings and cannot be hidden unlike bed nets. Governments must take the lead by facilitating programs designed to train artisans who will mass produce the devices. They can also show example by making all public buildings mosquito-proof. Thereafter, they could

now put in place necessary statutes to enforce complete house screening. Only when all houses are mosquito proof can we be sure of eliminating mosquito/malaria and expect to bequeath egalitarian poverty-free, malaria-free children to posterity.

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