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To the Executive Secretary - The Inspection Panel
PO Box 27566
Washington DC 20038

THE INSPECTION PANEL

1. We, the Njumbi Road Residents' Association (NRRRA), its Committee and members, live and represent others who live in the area known as Bernard Estate, Lavington, located in Nairobi, Kenya.

2. We have already suffered and are likely to suffer further harm as a result of the World Bank's failures and omissions in the construction and operation of an electric power substation by the Kenya Power and Lighting Company (KPLC), a project financed by the World Bank (WB) and located in Chalbi Drive, Bernard Estate, Lavington, Nairobi, Kenya. The project shares a boundary with Njumbi Road whose residents are members of NRRRA.

3. The project site is located in an area reserved under Nairobi City by-laws, for residential property only. The development is classified as a light-industrial complex forbidden under existing legislation. The construction has significantly changed the environmental ambience of the area and has already comprehensively and negatively affected the value of properties within the vicinity of the project. Other concerns include the risk of fire, explosion, unacceptable noise levels and pollution associated with the construction and operation of a power station within a residential community, acknowledged as possible within the KPLC Environmental Impact Assessment. Njumbi Road has experienced explosion and fire on a previous occasion when a KPLC transformer exploded. Severe damage to property and injury to residents occurred on that occasion. KPLC does not enjoy a reputation for efficiency and safety and residents are in fear of their lives. A few weeks ago, a similar power station in another part of the city suffered an explosion.

Further concerns involve the insidious effects of electro-magnetic radiation on human health. Although the degree of risk is not fully quantified, all studies without exception agree there is a risk possibly involving childhood leukemia and other serious illnesses. Any risk, especially when forced on our community which includes a number of small children, is unacceptable. There is a requirement that for safety reasons there should be a buffer zone of not less than two hundred metres between the station and the nearest human habitation. In this case the station shares a common wall with residences and the transformer is about ten metres from the nearest bedroom. In this case, the resident has attempted to sell his property and leave. There are no buyers for his one million dollar residence. A more complete discussion of the above problems is provided as an attachment.

4. The World Bank has not followed due diligence in approving the project. It should have inspected the site, recognized the unlawful nature of the development and that World Bank rules were being flouted. It is a matter of much regret that complaints made by my Association and earlier by a resident, Mr David Bell have been ignored by the World Bank Country Office. Bank Officials should have carried out an investigation as soon as they became aware of the problem and interacted with the affected community. Instead the Country Office has behaved like a co-conspirator in this illegal and dangerous enterprise. In particular, we consider that World Bank Environment and Social Safeguards Policy BP4.01 and OP 4.01 which require environmental assessment of projects proposed for World Bank financing to help ensure that they are environmentally sound and sustainable. It is my association's view that the project is unsound, illegal and dangerous and that the World Bank was aware of this when it approved the project. The World Bank regulations require full consultation with stakeholders and landowners and require that a majority support the development. In fact, there is total opposition from residents and one hundred and fifty persons, representing 100% of affected people, have signed a petition opposing the project. We have complained to the World Bank staff on the following occasions:

Letters of 30 May and 10 April 2011 from David Bell, Njumbi Road Resident to Mr Zutt Country Director
email from David Bell, 01 June 2011 to Kyran O Sullivan Energy Specialist World Bank Country Office,
Kenya.

Letter from Peter Usher (then Chair of NRRRA) of 19 March 2012 to Kyran O Sullivan. Letter hand delivered to WB Office Nairobi.

We have received a response to the letter of 19 March dated 3 April 2012 indicating that the WB will revert to the NRRRA after consultation with KPLC. There has been no contact since and we are dismayed by the lack of action and failure by the WB to provide a satisfactory response or to contact and liaise with the NRRRA or other residents and stakeholders.

Mr David Bell received a response to his email attachment). We consider it unsatisfactory and does not solve our problems for the following reasons:

The World Bank was made aware of residents environmental, safety and health concerns; the fact that the project flouted National and Municipal by-laws and that a court order stopping construction was being ignored. The WB chose to ignore these concerns and although aware of the issues for more than a year, have made no attempt to discuss problems with the complainants including NRRRA, a legally registered association, or address the irregularities and unlawful activities carried out by KPLC as part of the WB funded project. The WB has been an accessory to law-breaking and by endorsing KPLC activities and by ignoring its responsibilities to safeguard human rights, it has put a community in jeopardy, placed people in danger and has destroyed their natural and human environment guaranteed within the Kenya Constitution.

5. We request the Inspection Panel recommend to the World Bank Executive Directors that an investigation of these matters be carried out.

Signed



Peter Usher (member and former Chair of NRRRA and authorized by NRRRA to address this complaint to the WB on its behalf) PO Box 47074-00100 Nairobi, Kenya

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NJUMBI ROAD RESIDENTS' ASSOCIATION, P.O. BOX 25547, NAIROBI-00603, KENYA. (M) 0734 314151 (M) 0727 381404 (M) 0733 803488 We authorize you to disclose our identities.

Attachments:

1. NRRRA authorization for Peter Usher to represent the Association in the matter of complaint to the WB Inspection Panel
2. Signatories supporting the NRRRA complaint
3. Detailed complaint submission
4. Correspondence between NRRRA and others and the World Bank concerning the complaint
5. Letter from Mrs Bernadette Mwaniki, Njumbi Road resident, former senior City Council of Nairobi official in the City Planning Department regarding zoning regulations for the project site
6. Evaluation of Risks relating to Electro Magnetic Radiation and Electro Low Frequency Radiation
7. Extraction from KPLC Environmental Impact Assessment indicating adverse impacts of the project

----- Message from "David Bell" <thebellsnairobi@gmail.com> on Mon, 19 Mar 2012 18:17:24 +0300 -----

To: <peousher@africaonline.co.ke>
Subject: FW: Letters of May 30 and April 10 from Mr David Bell to Mr Zutt Country Director - KPLC substation Lavington

From: David Bell [mailto:thebellsnairobi@gmail.com]
Sent: Wednesday, June 01, 2011 12:34 AM
To: 'Kosullivan@worldbank.org'
Cc: 'Peter.Usher@unep.org'
Subject: RE: Letters of May 30 and April 10 from Mr David Bell to Mr Zutt Country Director - KPLC substation Lavington

Dear Kyran

Thank you for the attachments. I will ask for the stop order tomorrow. A few points at this stage:

- The so called sensitization meeting (which I could not attend due to other commitments) took place after NEMA had apparently "consulted extensively" with residents and approved the project.
- My understanding is that that "consultation" was with two people one of whom is not a resident, and the other who objected strongly.
- There was no early distribution of a questionnaire to me.
- Peter Usher wrote an article about this on the Kenya Association of Residents Associations (KARA) website on 17 January after NEMA apparently had approved but well before the certificate attached to your e-mail was signed on 24 April? I have cut and pasted that article below.
- Strangely, the NEMA certificate was signed immediately after the "sensitization meeting" which clearly produced significant objections from local residents (and some time after KPLC's contractors had begun work).
- The sensitization meeting only happened because the Residents' Association raised objections to what was going on.
- Of course they will produce paper for all of this. The question is what that paper is worth in terms of planting a monstrosity in what is one of the surviving pleasant parts of Nairobi.
- There are large undeveloped land areas which would have been less intrusive and I suggest just as effective for improving power supplies in the area. If they had put it in one of these, the surrounding undeveloped land could have been used other than for residential purposes.

I am not affected personally by this but others surely are, and I sense it is the thin end of the wedge. As Lavington faces the same fate as Kilimani and Kililleshwa with the erection of crowded developments on every available plot; residents are helpless to object. Peter Usher our Chairman has been threatened and taken to court over the illegal, politically connected development on the wetlands plot adjacent to the KPLC one. I notice to that despite stop notices on that development, the developers have resumed work; probably encouraged by the KPLC fiasco.

I will come back to you as soon as possible.
Thanks again for your e-mail.

David Bell

"Lavington residents: Nema behind our environmental woes

Monday, 17 January 2011 09:55

By Peter Usher

It appears that the National Environment Management Authority (Nema) is undertaking a concerted campaign to destroy our community as well as systematically destroying the nation's environment.

The Njumbi Road Residents Association (NRRRA) was informed recently by Kenya Power & Lighting Company (KP&LC), that it proposed to convert a property backing onto Njumbi Road into an electric power substation.

The Association on behalf of its members made a formal objection on the grounds of health and safety. NRRRA provided scientific reports indicating the risks of cancer associated with electro-magnetic radiation in close proximity to human habitat.

In addition, the NRRRA pointed out the safety risks of constructing a potentially dangerous high tension electrical facility in a residential area. It was also pointed out that the area is designated residential and as such, the development as proposed was both inappropriate and illegal under the city's zoning laws.

KP&LC have not to our knowledge complied with change of user requirements other than asking for and receiving local objections. No notice was placed at the site and demolition is currently ongoing based on approval from Nema without reference to the residents or their associations or consideration of their objections.

It can also be noted in this context that KP&LC has for some years, illegally supplied unmetered electricity to an adjacent disputed development which it is believed the new sub-station is designated to serve.

NRRRA pointed out in its objection that there was public land on Chalbi Drive that could be used for the power substation development that would not compromise the health and safety of residents. Yet, KP&LC prefer to invade a residential street.

It is believed that the proposed substation is being constructed to serve the needs of the residential estate being built on the Chalbi wetland to which Lavington residents, the Green Belt Movement and Kara have fought against for years.

However Nema has consistently approved the destruction of the designated wetland, water resource, flood plain and fragile ecological zone (Ministry of Water and Irrigation survey).

Is Nema totally unaware of the importance of the nation's wetlands and the risk to national water resources particularly as populations increase and climate changes to a more drought-prone regime?

Over the past few months, a private company has systematically destroyed the Chalbi wetland in preparation for their proposed development.

Kara and Green Belt Movement objections have been disregarded by the developer and a site house has been constructed and a bore-hole drilled despite, it is believed, that there is no such provision for a borehole within the Nema approved EIA.

Residents' opinions have not been sought and Nema secretly approved the environmentally unsound canalization of the river running through the wetland.

It is assumed that if a borehole was approved by NEMA, it too was approved secretly.

Nema made a pledge to Kara in my presence, that it would be transparent in all future involvements in the matter of the disputed Chalbi wetland and that it would respond to the exhaustive correspondence initiated by the NRRRA on this matter.

As expected, this was another unfulfilled promise by what we feel is an incompetent and dishonest entity that shames this country.

Bernard Estate was once the pride of Lavington and an example of environmental management at its best. Over the last five years, the City Council of Nairobi and Nema have conspired with developers to create a concrete wasteland in direct contravention of city and national law.

It now appears that Nema wishes to accelerate the rate of damage for which it is directly responsible. It can only be assumed that this is a personal vendetta against Njumbi Road residents. Nema is destroying us.

The writer, Mr. Peter Usher, is Chairman at the Nairobi Lavington's Njumbi Road Residents Association.

Last Updated (Monday, 17 January 2011 10:01)"

From: Kosullivan@worldbank.org [mailto:Kosullivan@worldbank.org]
Sent: Tuesday, May 31, 2011 5:08 PM
To: thebellsnairobi@gmail.com
Cc: Gkajubi@worldbank.org; dthairu@worldbank.org; jongache@worldbank.org
Subject: Letters of May 30 and April 10 from Mr David Bell to Mr Zutt Country Director - KPLC substation Lavington

Dear Mr Bell,
Thank you for your letters on the subject above.

I attach the documentation that I have that includes planning and environmental permits and the minutes of consultation with residents. Your letter of May 30 refers to a Stop Order issued by the National Environment Tribunal. Could you please send me a copy of the Stop Order.

Thank you and regards,

Kyran

(See attached file: CHANGE OF USER ADVERT.PDF)(See attached file: NOTIFICATION OF APPROVAL OF DEVELOPMENT PERMISSION.PDF)(See attached file: MINUTES FOR PUBLIC SENSITIZATION HELD ON 22 FEB 2011.pdf)(See attached file: MINUTES OF MEETING BTW PETER USHER AND KPLC ON.PDF)(See attached file: ELA LICENCE LAVINGTON PDF.PDF)(See attached file: Invitations to a Public Meeting - Lavington.pdf)

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10 May 2012

We, Njumbi Road residents support the actions of the Njumbi Road Residents' Association (NRRRA) in objecting to the World Bank Inspection Panel regarding the construction of an electric power sub-station in Chalbi Drive, Lavington and adjoining Njumbi Road. The Power sub-station is being constructed by the Kenya Power and Lighting Company (KPLC) and funded under a World Bank project. We consider the development to be illegal, inappropriate, environmentally unsound and poses a danger to people living near the development.



Peter Usher (former chair NRRRA)

email:peousher@me.com

PO Box 47074-00100 Nairobi, Kenya 5 Njumbi Road, Nairobi tel 0735 178603

	NAME	ADDRESS	RESIDENCE	TELEPHONE	EMAIL
1.	MRS J.L.C SAIO <i>JLCS</i>	4 NJUMBI ROAD, NAIROBI P.O. BOX 25374, NAIROBI 00603		0733- 985449	N/A.
2.	O.M. NAUL <i>M Naul</i>	2 NJUMBI ROAD PO BOX 47009 NAIROBI 00100		0722524001	omnigroup@ milsumiret.or.ke
3.	RUPERT & JACQUE NORTHCOTT	1 NJUMBI LAVINGTON PO BOX 24960 - CASE 2 KAREN, KENYA.		+254 734314151	rupert. northcott@ gmail.com
4.	Mr. A. van Schie	10 Njumbi Road, Nairobi PO Box 40092 - 00100 Nairobi		+254 717967652	avanschic72 @gmail.com

NJUMBI ROAD RESIDENTS' ASSOCIATION

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The Inspection Panel,
World Bank

10 May 2012

Washington DC

Dear Sir or Madam,

**COMPLAINT TO THE INSPECTION PANEL REGARDING THE
DEVELOPMENT OF AN ELECTRIC POWER SUB-STATION IN
LAVINGTON, NAIROBI BY KENYA POWER AND LIGHTING COMPANY
AND FUNDED UNDER A WORLD BANK PROJECT**

I confirm that Mr Peter Usher of 5 Njumbi Road, Lavington and member and past Chairman of Njumbi Road Residents Association (NRRA) has been designated to represent the NRRA in its complaint to the World Bank Inspection Panel regarding the development of an electric power sub-station in Lavington adjacent to Njumbi Road and funded under a World Bank project.

Mr Usher has the full authority of the NRRA Committee to pursue the matter on NRRA's behalf.

Yours faithfully,

Rupert Northcott
Chairman



Submission

to the World Bank Inspection Panel

10 May 2012

The Njumbi Road Residents' Association wishes at the outset to confirm that it understands and welcomes development in this country. It asks only that such development is consistent with the Constitution; obeys existing laws and statutes; that it protects the environment from harm and is for the benefit of future generations of Kenyans and that it respects the rights of all its citizens. It has so stated these views in correspondence and discussion with the City Council of Nairobi (CCN) and the National Environmental Management Authority (NEMA) and the World Bank.

It is the understanding of the NRRA that, in conformity with the Constitution, all people are equal under the law and that justice is a universal right. Also, NEMA is legally bound to ensure that all persons living in Kenya are entitled to a clean and healthy environment.

It is an observation of Nairobi residents and their Associations that on occasion, the law is ignored with impunity and illegal activities, especially those relating to land acquisition and development are undertaken to the detriment of law-abiding citizens.

In theory, there are checks and balances that should ensure that inappropriate, dangerous and unwelcome developments do not occur. The vast number of observable illegal development, not least in Lavington, is stark testimony that the legal rules have not been applied.

The Planning Department of the CCN is principally responsible for ensuring that planning approval is granted to only those activities that adhere to the relevant laws and bye-laws of the city. The CCN is a body that cannot provide the most basic of services to its ratepayers. There are few cities in this world, even in the least-developed countries that do not supply basic amenities. In Nairobi, there is no garbage collection; limited fresh water delivery, no safe sewage and solid-waste disposal and limited infrastructure maintenance.

This assumption that regulations which do not exist rather than the existing law, is the basis upon which development strategy is formulated is abhorrent to residents. This is the Association's position. The law is clear and must be applied as it currently exists and not violated for the convenience of the purported Authority.

In this context, a decision by KPLC to place an electric power sub-station in a residential estate, particularly one classified under existing law as Zone 5 is, under all circumstances, illegal and thus, cannot be allowed. Endorsement by NEMA of this proposal is both a betrayal of the environment and of its own legally-binding charter. It is noted that the project is funded by the World Bank under its project Additional Financing Credit for the Energy Sector Recovery Project. In approving such projects, the World Bank has a designated responsibility to ensure that the project is environmental sound and that people are not subjected to harm. In this the World Bank Kenya Country Office has been derelict in its responsibilities. It has accepted assertions by KPLC that the developer has complied with World Bank requirements for stakeholder consultation when this has been

improperly carried out and dishonestly reported. It is regretted that when the Country Office became aware of the violation through complaints by NRRRA and others, it chose not to discuss the objections with complainants and to ignore them. By doing so, the World Bank has become a willing accessory to an illegal enterprise. Irrespective of the legal obligations, the World Bank has endorsed a project that has detrimentally altered the physical environment and lessened the quality of life of nearby residents who have made significant and expensive investment in an area, now devalued by an unsound project. The real risks to their health and safety are explored later in the document. The World Bank, through indifference and carelessness has acted contrary to its stated legal principles and is responsible for those risks and losses suffered by land owners and residents.

NEMA has based its approval primarily upon an Environmental Impact Assessment (EIA) prepared by an expert of KPLC's choosing and at its expense. It is naive to assume that the assessment is independent. How could it be? Lavington Residents Association (LRA) together with the Kenya Alliance of Resident Associations (KARA) have written and met with NEMA with the purpose of reviewing the EIA process and to propose how the value of EIAs and reliability might be improved. However, the concerns related to the efficacy of EIA procedures as practiced by NEMA is not the issue here. NEMA has endorsed an EIA, prepared by KPLC which is demonstrably incompetent. I submit detailed analysis of the EIA which is superficial and in most parts, irrelevant. Counter-argument is offered from the NRRRA concerning scientific, social, environmental and legal issues. Again, it is not the scientific inadequacies of the EIA that most concern my Association. It is the fraudulent assertions contained in the document that most offends. I refer to the statements alleging that extensive consultation was undertaken with residents by the EIA consultant. The EIA annexes statements by two witnesses, allegedly supporting the KPLC development. The first denies this and is actually, vehemently opposed. He has since signed a petition against the proposed development. The other is not even a resident of Lavington and has no knowledge of the plans. On the other hand, one hundred and fifty local residents have signed a petition opposing the development. This is believed to represent one hundred percent of all affected and contactable residents. To repeat, there is total opposition to KPLC and residents are angry at the attempted misrepresentation of their opinion and by the deception of NEMA whose charter states that if more than fifty per cent of affected residents oppose a development then it must be automatically rejected.

An even more serious matter concerns the Njumbi and Chalbi residents. When the NRRRA raised objections to the proposed development, the National Environment Tribunal saw fit to impose a STOP ORDER on KP&LC until the matter was heard. I can assert that the building continued unabated from that date until May 2012. This flagrant disobedience of the court order for almost a year, must amount to contempt.

It is a fact that the illegal construction has had the most severe consequences for the most immediate neighbour to the site, Mr Naul of 2 Njumbi Road. I am informed, and there is a letter to this effect, that the purchase offer on his property has been withdrawn as a direct consequence of the continuing work on the site which is regarded as indication of a fait-accompli regarding the future circumstances of the site.

I draw your attention to the afore-mentioned NEMA CHARTER which categorically states that development should not disturb or alter the existing ambience of the surrounding environment. A

picture, extracted from Google Maps, shows the project site and the immediate surroundings. It is clear that the area is a wholly residential area within which no commercial or industrial entity intrudes. That the environmental ambience is being altered and disturbed is blindingly obvious and NEMA has no option under its charter other than to reject the application for this industrial site. A similar responsibility falls upon the World Bank. It too, has responsibility within its Rules to protect people and their environment. In this case, it has not honoured its commitment.

A Njumbi Road resident, Mr David Rogers (11 Njumbi Road) has written to the NRRRA as follows:

"While an improvement in power supply and a reduction in the number of power cuts would be welcomed, the location of the new sub-station is regarded as inappropriate and illegal. We have invested heavily and in good faith, and strived for many years to maintain and indeed improve the beauty and tranquillity of this presumed strictly residential neighbourhood." The letter goes on to classify the site as an "eye-sore" and a possible health-hazard, an issue to which will be addressed shortly. Both residents believe that their properties have been devalued and in the earlier case this has been demonstrated as true. The EIA states otherwise, indeed, suggesting that properties will gain in value, a claim that flies in the face of all logic. An attempt has been made to canvas the opinion of residents of similar power stations elsewhere. An examination of those seen, show that they do not exist in the same close proximity to residential properties as does the Lavington site, which was also a residential property until its unannounced demolition. That action was completely contrary to both NEMA and CCN regulations. It is a fact that KPLC acted to conceal its activities from NRRRA residents. It had an obligation to announce its intentions by the erection of a notice at the site. It failed to do so – a common practice among illegal developers. KPLC did not consult with residents but lied to NEMA and the World Bank that it did. It did not call a public meeting until forced to by the Residents Associations and it then totally ignored the universal opinion of the meeting that the development was inappropriate and unwelcome.

A photograph shows residents at the site. There was not a single supporter of the project among them. As you have been informed, a wider and honest canvassing of the estate confirmed the total opposition to the proposal. NEMA and the World Bank, in accordance with their charters should have stopped the project at this point. They did not.

Brief reference has been made to health and safety issues. They will now be considered in more detail. Njumbi Road residents have had painful experiences with KPLC. The company cannot maintain a continuous power supply to the area. Breakdowns and power surges are a daily occurrence. Old and ill-maintained equipment, particularly transformers, have been known to burst into flames, in one case setting fire to trees and destroying the motor vehicle of a resident, Mrs Saio of 4 Njumbi Road, a residence sharing a border with the proposed station site. It is understandable that she, and indeed all residents, fear this larger structure, that even the company admits brings a risk of fire and explosion and toxic oil spillage. Hardly attributes calculated to instil confidence or to enhance property values. The continuous noise consistent with a 24hour operation will inhibit sleep and cause psychological harm. This noise will permanently alter the afore-mentioned tranquillity of the estate. Put another way, the environmental ambience will be adversely altered contrary to the NEMA CHARTER and World Bank project regulations. Another reason then, why the project should not be approved. But most invasive of all, is the silent short wave electro-magnetic radiation that can induce tumours, sickness and eventual death. The impact is most severe among the young. I

draw your attention to a study "Electric Wiring Configurations and Childhood Cancer" by Wertheimer and Leeper which studied the deaths of 344 children who died from childhood cancer in just one US State. A dose response relationship was noticed for higher exposure dwellings with an incidence rate two or three times higher of leukaemia, lymphoma and cancers of the central nervous system than for lower exposure homes. In communication with KP&LC officials, NRRA requested information on actual EMR dose rates, at the site, at the boundary of the nearest residence and inside the nearest dwelling. NRRA also requested legally-allowable exposure data and the likelihood of peak doses exceeding limits. This is fundamental information for Lavington residents yet the company refuses to comply. It also refuses to provide a copy of the KPLC Act, a public document kept hidden from public scrutiny by the company. It is believed that this document contains regulatory measures preventing KPLC from placing its power equipment in close proximity to human habitation and contains specific information on required safety zones. It is normal practice in the developed world, that electric power generators and transformers, high tension lines and similar equipment are sited at a distance of between one or two hundred metres from human habitation. In this case, there is no way-leave with the power station abutting a Njumbi residence with its transformer only metres from the bedrooms. A letter from KPLC to the WB Country Office states that a way-leave exists. It does not and it is a serious omission of the World Bank not to verify the truthfulness of the KPLC claim.

There are other health issues believed to be consequential of electro-magnetic radiation exposure. Brain tumours; Birth defects; Miscarriages; Chronic fatigue; Headaches; Cataracts; Heart problems; Stress; Nausea; Chest pain; Forgetfulness and I trust that I have not forgotten anything. KPLC suggest that cause and effect have not been proven. I would draw your attention to the fact that US Environmental Protection Agency recommended that Electro-magnetic frequencies be classified as a Class B carcinogen ranked with DDT, Dioxins and PCBs. I also ask this – Whatever the final determination of risk, should Kenya and the World Bank allow a pervasive and dangerous experiment where the outcome is uncertain, to be conducted on its citizens for the purpose of profit and the convenience of a company with a reputation for money-grabbing and inadequate service? KPLC cite the uncontrolled and mostly illegal high rise and multi-unit development that is taking place in other parts of Lavington and adjacent areas as the reason why a more extensive power network is necessary. We understand that. In Njumbi Road we have been careful of our environment, resisting attempts by developers to fill green spaces with concrete and drain our precious water-courses. There are more suitable sites. KPLC apparently failed to look for them. There is public land and other open ground to the South of the site which would have solved the legal, environmental and risk factors outlined in this document. It may also be relevant to note that the KPLC development is taking place adjacent to a wetland designated as a riparian reserve, a water catchment area and a flood plain. It is possible that the power-station contravenes the Water Act 2002 in relation to the protection of this fragile ecosystem, yet the EIA in its hundreds of pages, does not indicate consultation with the Water Resource Management Authority. This is another example of sloppy scholarship that characterizes this worthless document. As a geography primer it deserves a B minus; as a supposedly scientific document it fails completely, succeeding to my mind, only as a work of fiction.

I have made a lengthy submission based on legal, environmental and social grounds. I trust that it is clear that the Association and its members that I represent, understand the need for, and welcome appropriate development. It is appreciated that KPLC services in the city and especially in Lavington,

are inadequate and must be upgraded. NRRRA rejects the decision to site the power sub-station adjacent to Njumbi Road. The objection stems from the knowledge that to approve an industrial development within a Zone 5 residential area is, under current law, illegal.

KPLC did not comply with World Bank, CCN and NEMA regulations in initiating the project. I submit that it then used dishonest tactics and fraud to gain development approval. It deliberately ignored legal orders to cease development and instead wilfully destroyed the environment.

All residents, it is believed without exception, oppose the development on the grounds that there are health and safety issues that introduce unacceptable risks and dangers promoting fear among residents and that the environmental ambience will be detrimentally altered contrary to the NEMA and World Bank regulations.

Residents have the guaranteed right under the Constitution to a safe and pleasant environment. They have invested heavily in their community and homes. They have circumvented the neglect visited on the community by the CCN by themselves providing and financing services not undertaken by the Council, including building and maintaining the road bed at a cost of over KShs 13 million, undertaking street cleaning and road reserve maintenance and providing security measures and garbage disposal. Property values supported by these measures are likely to plummet because of the KPLC development plans and NEMA and World Bank approvals.

NRRRA requests that the World Bank observe the provisions of its Charter and Regulations and otherwise uphold the law.

Further requests the World Bank to require KPLC to seek an alternative and more appropriate site for its development.

Find in favour of the NRRRA submission and require the proposed development in Lavington to stop immediately and to require KPLC to remove the illegally erected infrastructure and to restore the environment it destroyed.

1st November 2011

Dear Mr. Usher,

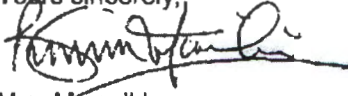
Thanks for your note of yesterday.

I have investigated the issues and have the following report:

- a) The current zoning policy for zone 5 is attached. I have attached other documents downloaded from the net on power lines, transformers etc which could be of use.
- b) Zone 5 is primarily residential and has a number of designated commercial Centres which are not reflected in this particular policy. These have their special densities outlined in other NCC polices.
- c) There are no industrial development policies for zone 5 because there are no planned industrial sites in the zone.
- d) NEMA has just confirmed to me this afternoon that even a few weighty objections from residents is enough to call for a full EIA study.
- e) Electric substations are classified as light industries. Change of use for those must be thorough and subjected to the will of the residents especially its immediate neighbors through well displayed onsite billboards. This was not the case for the application under review. All or most residents were caught unawares.
- f) I have also checked with NEMA what criterion is employed for a full EIA study on a project. One is the scale of the project in terms of size and potential impacts on the environment and human health. Power substations fall under this category. One wonders why a study was not conducted for our particular case.
- g) Power lines and transformers are known to emit electromagnetic fields and radiation which can cause **childhood leukemia, brain cancer, breast cancer and other cancers, as well as Alzheimer's disease.**
(www.ehow.com/list-5901161-health-effects-power-lines-transformers.html).
Clinical depression is another effect of such installations close to residential areas. The British Medical Journal in June 2004 recommended location of these as 200 metres from residential houses. If these are so dangerous located close to residential areas, one can only wonder at the level of damage sub stations can cause.

- h) For these reasons, substations have traditionally not been located in the residential estates in Kenya and definitely not in small plots like the case in Lavington where effective buffers can not be put into place.
- i) KPLC is not known for its care of its premises. The transformer along Njumbi Road bursts into fire often burning for hours before repair crew arrive on the scene. If the substation which is being constructed in our midst by **FORCE** against every resident's wish were to catch fire, the damage to lives and property would be too great to countenance.
- j) Finally it is noted that KPLC does a noble job in providing power to Kenyans. But surely there are other safer locations than the current one. It is our prayer that this silent killer will be removed from the middle of our residential area.

Yours sincerely,



Mrs. Mwaniki

SNOW	AREAS COVERED /	GC %	PR %	Dept Ref. Map	TYPE (S) OF DEVELOPMENT ALLOWED	MIN. AREA (Ha.)	REMARKS/POLICY ISSUES
3	Parklands						
	• Commercial	50	100	o	Commercial/Residential (High-rise Flats)	0.05	
	• Residential	35	75	x			
	City Park Estate /Upper Parklands	35	75	x x			
	Westlands						
	• Westlands CBD				Commercial/Offices/Residential (High Rise Flats) - Four Storeys Max.	0.05	
	• Westlands/Museum Hill						
o Block 1 Commercial	80	200	o				
o Block 2&3 Offices & Highrise Residential	35	75	x x				
o Block 4 Offices	80	200					
o Block 5 Commercial/Residential Hotels							
4	Spring Valley				Residential (Apartments allowed on sewer only) - Four Storeys Max.	0.05	• Policy Under Review
	Riverside Drive			o			
	Kileleshwa	35(S)	75(S)	XXXXXX			
	Kilimani Thompson Woodley	25(U)	25(U)				
5	Upper Spring Valley				Low-Density Residential One-Family House	0.2(u) 0.1(S)	• Maisonettes Allowed On Sewered Areas Of Lavington
	Kyuna	25	25	CP			
	Loresho			x			
	Lavington /Bernard Estate			x			
	o On sewer	35	75				
	o Unsewered	25	25.2				
6	Muthaiga New Muthaiga	25	25	CP XXXX	Low-Density Residential	0.2	Single Family Dwelling

Extracts from the KPLC EIA

NEGATIVE IMPACTS

Against the background of the above positive impacts, there will be anticipated negative impacts emanating from the construction and subsequent operation activities of the substations. The negative impacts will include:

During Construction

During construction of the substation, there could be negative impacts on water (storm water management, water supply and sanitation), geology (soils and geotechnical) and air (pollution).

- Loss of faunal habitats through the clearing of vegetation. Incoming 66KV sub-transmission line will have to be constructed from Windsor Hotel side. Take-off distribution feeder lines will also have to be constructed from the substation. This might lead to the cutting of some trees to pave way for the line routes.
- Soil erosion is also anticipated in areas that will be cleared of vegetation.
- There will be an influx of construction workers that could raise security concerns and also social/health concerns such as prostitution and sexually transmitted diseases e.g. HIV/AIDS.
- The proposed development is likely to strain the resources available like water in the area in the short term. This is as a result of increased population in the project

- personnel and other activities arising there-from without commensurate services and facilities.
- Dust will be generated during construction by vehicular movements in addition to air pollution from the exhaust systems of the vehicles.
 - The 23MVA transformers are massive and there could be damage to the roads leading to the proposed substation sites, during the transportation of the transformers.
 - Temporary toilets will be used during construction, however, their impact to the environment is considered minimal as the wastes are expected to be disposed off regularly.
 - Construction activities might cause noise pollution in the neighbourhood.
 - The occupational health and safety of construction workers might be affected during the constructions phase.
 - The proposed project will cause visual intrusion as it will change the natural appearance of the project area landscape
 - Solid wastes will be generated during construction.

During operation

Minimal negative impacts are anticipated during the operational phase of the substations. However the few anticipated negative impacts include:

- Electromagnetic non-ionising radiation will emanate from the electric fields around substation equipment and conductors. However, the anticipated impact is minimal because only extremely low frequency fields are generated from substations.
- Inadequate disposal of waste water from toilets and bathrooms
- Although the chances are considered small, it is possible that emergencies with the electrical equipment may occur at the sub-station, for example, transformers can become overloaded and blow up and switchgear equipment can explode, which can result in fire. Each of these kinds of incidents can have knock on effects and can place humans, animals and the natural environment at risk.
- Risk of electrocution to members of the public and employees
- Continuous humming noise from the transformers
- Transformers contain large volumes of oil. If the transformers are not well maintained there can spillage of oil into the environment. Oil spills can also occur during refilling, vandalism and also during cases of emergencies such as explosions. Oil spills can cause significant land and/or water pollution.

During decommissioning

Noise, dust and solid wastes will be generated during the decommissioning phase. The project area appearance will also change. Oil spillages from the transformers can occur during loading for transportation. The roads can also be damaged during transportation. The occupational safety and health of employees involved in decommissioning will also be jeopardized.

NEGATIVE EFFECTS OF POWER SUBSTATIONS IN RESIDENTIAL NEIGHBOURHOODS

Power substations

An electrical power substation is an assembly of equipment in an electric power system through which electrical energy is passed for transmission, distribution, interconnection/transformation, conversion, or switching.

Specifically, substations are used for some or all of the following purposes:

- a) Connection of generators.
- b) Transmission or distribution lines, and loads to each other.
- c) Transformation of power from one voltage level to another.
- d) Interconnection of alternate sources of power.
- e) Switching for alternate connections and isolation of failed or overloaded lines and equipment.
- f) Controlling system voltage and power flow.
- g) Reactive power compensation.
- h) Suppression of overvoltage.
- i) Detection of faults, monitoring, recording of information, power measurements, and remote communications.

A power substation includes a variety of equipment. The principal items are transformers, circuit breakers, disconnect switches, bus-bars, shunt reactor^{K^shiint}, capacitors, _{CLirrenL}and potential transformers, and control and protection equipment.

Substations are referred to by the main duty they perform. Broadly speaking, they are classified as: transmission substations, which are associated with high voltage levels; and distribution substations, associated with low voltage levels. Substations are also referred to in a variety of other ways:

1. Transformer substations are substations whose equipment includes transformers.
2. Switching substations are substations whose equipment is mainly for various connections and interconnections, and does not include transformers.
3. Customer substations are usually distribution substations on the premises of a larger customer, such as a shopping center, large office or commercial building, or industrial plant.
4. Converter stations are complex substations required for high-voltage direct-current (HVDC) transmission or interconnection of two ac systems which, for a variety of reasons, cannot be connected by an ac connection. The main function of converter stations is the conversion of power from ac to dc and vice versa. The main equipment includes converter valves usually located inside a large hall, transformers, filters, reactors, and capacitors.

Most substations are installed as air-insulated substations, implying that the bus-bars and equipment terminations are generally open to the air, and utilize insulation properties of ambient air for insulation to ground. Modern substations in urban areas are esthetically designed with low profiles and often within walls, or even indoors. Metal-clad substations are also air-insulated, but for low voltage levels;

they are housed in metal cabinets and may be indoors or outdoors.

Acquiring a substation site in an urban area is very difficult because land is either unavailable or very expensive. Therefore, there has been a trend toward increasing use of gas-insulated substations, which occupy only 5-20% of the space occupied by the air-insulated substations. In gas-insulated substations, all live equipment and bus-bars are housed in grounded metal enclosures, which are sealed and filled with sulfur hexafluoride (SF6) gas, which has excellent insulation properties. For emergency replacement or maintenance of substation transformers, mobile substations are used by some utilities.

Social and health impacts

The social and health impacts of an electric power substation depend on its components. Most of these effects emanate from Electric Magnetic Fields (EMFs). EMFs are known to have the following negative effects:

a) Childhood leukemia.

Since a 1979 study called "Electrical Wiring Configurations and Childhood Cancer," conducted by researchers Nancy Wertheimer and Ed Leeper for the American Journal of Epidemiology, first introduced scientific evidence that childhood leukemia increases with time spent in low-frequency EMFs, there have been a number of reports on the subject. Wertheimer and Leeper conducted a case-control study of 344 children who had died of childhood cancer in Colorado between 1950 and 1973. Proximity to electric distribution lines was assessed and elevated cancer risks were indicated for residents of higher exposure dwellings. A dose response relationship was noted with greatest risk associated with length of residence in high exposure homes. Compared to children from low exposure homes, those dwelling in high exposure environments were two to three times as likely to have developed leukemia, lymphomas, or cancers of the central nervous system. One 2002 report by the U.S. National Institute of Environmental Health Sciences concludes that there is no evidence of health effects from low-frequency EMFs. However, the British Medical Journal's June 2004 issue reports a 69 percent rise in leukemia for children living within 200 meters of power lines. There may be enough evidence for most scientists to conclude that there is a link between low-frequency EMFs and childhood leukemia. However, a strong school, including the World Health Organization, the National Academy of Sciences and energy companies like Energex, claim that the linkage does not indicate that the low-frequency EMFs actually caused the leukemia. These groups state that the cancer could be caused by other aspects of poverty found disproportionately in the homes near power lines and transformers, which are found in power substations.

b) Other health problems

Apart from childhood leukemia which has been widely studied, power transformers (a common component of power substations) have been associated with the following disorders (<http://emf.mercola.com>):

i. Brain tumors

ii. Leukemia

- | | |
|--------------------|----------------------|
| iii. Birth defects | viii. Heart problems |
| iv. Miscarriages | ix. Stress |
| v. Chronic fatigue | x. • Nausea |
| vi. Headaches | xi. Chest pain |
| vii. Cataracts | xii. Forgetfulness |

In a draft report issued in March 1990, the International Environmental Protection Agency recommended that EMFs be classified as a Class B carcinogen - -a "probable human carcinogen and joined the ranks of formaldehyde, DDT, dioxins and PCBs. This recommendation was later amended due to political and economic pressure.

c) Noise and vibrations

The zooming and vibrations produced by transformers is a source of noise pollution.

d) Fires and Accidents

Due to harmonic factors and other factors, a lot of heat is generated in a transformer. This heat can lead to fires or related accidents in a residential area.

e) Electrical inefficiencies

Harmonic distortion in transformers may cause malfunction operation of electronic components, high currents in the neutral, problems with computing and communication equipment.

f) Loss of property value

Due to change in the serenity and visual quality of a neighbourhood, introduction of a power substation can lead to serious loss in value of property.

Environmental impacts

Environmental impacts from electric power substations mainly emanate from EMFs. Some of these impacts are highlighted below:

- a) Both animal and human studies on the effects of ELF electromagnetic fields have shown a decrease in the secretion of pineal melatonin, a hormone which stimulates the daily cycle of sleep and wakefulness, the circadian rhythm. Research on the effects of electromagnetic fields on reproduction have produced mixed and equivocal results. Studies of chicken eggs and miniature swine have indicated slight possibilities of abnormal development, while other studies have shown no measurable effects.
- b) Depending on the type of transformer, the following impacts have been identified (Hans De Keulenaer, 2006).

Impact category	Unit	Type of transformer		
		AA'	CC	C-Amorphous
Acidification potential	kg SO2-eq	291	207	108

Eutrophication Potential	kg Phosphate-eq	21	15	8
Global warming potential	tonne CO2-eq	59	42	22
Ozone layer depletion potential	g R11-eq	17	11	6
Photochemical Ozone Creation Potential	kg Eth-eq	22	16	9

- c) Aesthetics and environmental quality of a residential neighborhood can be greatly affected by introduction of a power substation. This can be solved by adequately housing the substation within a structure similar to the neighborhood character.

Distance Safety from EMFs

Electric and magnetic fields are usually low enough by about 120 or 150 metres away ~ even from the largest power lines.

However some recent work at Bristol University suggests that living down-wind of the line (ie the NORMAL wind direction blows across the line before coming to your house) can produce a higher than normal incidence of a number of cancers. The 'safe' distance is about 500 metres, but is less if there are tall trees or high bushes between you and the line as most of the harmful aerosols attach themselves to these before they reach your house.

If the wind normally blows in any other direction than towards you from the power lines, then the 120 or 150 metres mentioned above is probably adequate.

Also, if it is a very non-polluted area (low natural radon gas and low man-made pollutants ~ industrial & motor vehicle, etc) then, again, the 120 to 150 metres clearance distance should be adequate.

NB: The above details have been provided by Alasdair Philips, BSc(Eng), DAgE, MIAgE, in an online discussion. No exact scientific proof is yet provided (source: www.powerwatch.org.uk).

