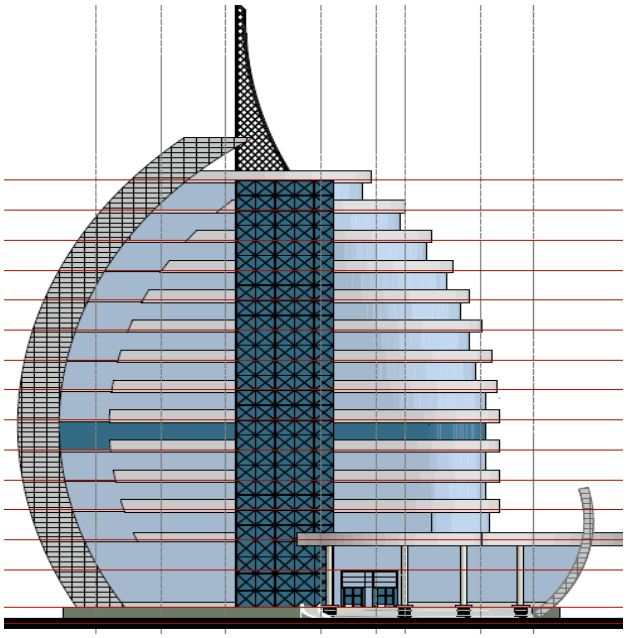
PROJECT TITLE:

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT PROJECT REPORT FOR PROPOSED COMMERCIAL DEVELOPMENT (UVUVI HOUSE)

CONSTRUCTION ON PLOT L.R NO. 209/15372, OFF MUHOHO ROAD, SOUTH C, LANGATA SUB-COUNTY; NAIROBI CITY COUNTY

Coordinate: Latitude1°19'29.08"S and Longitude 36°50'11.31"E.



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DECEMBER 2021

DECLARATION

I certify that this project report has been prepared in total adherence to NEMA requirements as provided for in the Environmental Management and Coordination Act (Cap 387) and the Environmental (Impact Assessment and Audit) Regulations (2003). The proponent has in this regard contracted a registered EIA/ EA Lead Expert/Firm of Experts for this very purpose.

REPORT TITLE:	***ENVIRONMENTAL IMPACT ASSESSMENT PROJECT REPORT FOR THE PROPOSED COMMERCIAL DEVELOPMENT (UVUVI HOUSE) ON PLOT L.R. NO. 209/15372, OFF MUHOHO AVENUE, SOUTH C, NAIROBI CITY COUNTY***
PROPONENT:	***THE PERMANENT SECRETARY, STATE DEPARTMENT OF FISHERIES, AQUACULTURE AND BLUE ECONOMY, KENYA FISHERIES DEPARTMENT P.O BOX 30007, NAIROBI***
Signature:	***Date:***
……	……
FIRM OF EXPERTS:	***ZENITH SPATIAL PLANNING AGENCY LIMITED EIA/EA FIRM OF EXPERTS (REG. NO 9642) P.O. BOX 24797-00100 – NAIROBI***
Signature:	***Date:***
……	……..

EXECUTIVE SUMMARY

Although Kenya's marine resources are of strategic value to national and local coastal economic development, the blue economy sector remains hampered by several challenges. To exploit the potential and attain economic benefits from the coastal and marine resources, the Government of Kenya, through the State Department of fisheries, Aquaculture and the Blue economy (SDFA&BE), requested the World Bank to support the sector's development through the Kenya Marine Fisheries and Socio-Economic Development (KEMFSED) project. The project shall enhance the blue economy sector to support coastal livelihoods and contribute to food security. As part of the efforts under the KEMFSED project to strengthen institutions in the development of Kenya's blue economy, funding has been committed to constructing a fisheries headquarters building in Nairobi to house key institutions undertaking and providing fisheries-related functions and services. The Uvuvi house will bring together the State Department of fisheries, Aquaculture and the Blue Economy (SDFA&BE), Kenya Fisheries Service (KeFS), Kenya Fish Market Authority (KFMA), Kenya Fish Levy Funds, and Kenya Fisheries Advisory Council, among others agencies and entities.

The fisheries-related institutions face accommodation challenges which have led to being accommodated in different locations within Nairobi city. The existing situation poses challenges to service delivery with extra movement costs to the client and the organization's staff. In order to address such specific challenges within the blue economy setup, there was a need to undertake fisheries infrastructure development to develop and strengthen the capacity of Kenya's fisheries-related institutions. The proposed consolidating of all institutions under one roof to provide the client with one stop service center shall come in hand in: centralizing the administration of critical institutions in the blue economy, minimize operating costs for the clients and the organizations, reduce time wastage shuttling between offices, maximize employee satisfaction and improve work productivity as well as create harmony among institutions to enhance synergy and efficiency.

The proposed sub-project falls under the World Bank's support to the government through investment lending towards transforming and strengthening sectors related to the blue economy. For the construction of the Uvuvi house, the World Bank's Safeguards Policies[1] applied to the project are mandatory (see below the list and links) and all applicable Kenya regulations on construction, environmental, labor, water, air, *occupational health and safety, and others* are required for the environmental and social due diligence in both construction and operation stages.

[1] https://www.worldbank.org/en/projects-operations/environmental-and-social-policies

Applicable World Bank Safeguards Policies for Uvuvi House

Code	Name of the Policy	Link in the internet in the public World Bank webpage
OP 4.01	Environmental Assement	https://policies.worldbank.org/en/policies/all/ppfdetail/1565 https://policies.worldbank.org/en/policies/all/ppfdetail/1574
OP 4.11	Physical Cultural Resources	https://policies.worldbank.org/en/policies/all/ppfdetail/1571

Applicable National Laws and Regulations for KEMFSED and Uvuvi House

NO.	Name of Law or Regulation	Link in the internet
	Construction Laws and Regulations	
1.	The National Construction Authority Act No. 41 of 2011	https://eregulations.invest.go.ke/media/NationalConstructionAuthorityAct_No41of2011.pdf
2.	The National Construction Authority regulation 2014	http://kenyalaw.org:8181/exist/rest//db/kenyalex/Kenya/Legislation/English/Acts%20and%20Regulations/N/National%20Construction%20Authority%20Act%20Cap.%20449A%20-%20No.%2041%20of%202011/subsidiary%20legislation/docs/NationalConstructionAuthorityAct41of2011_subsidiary.pdf
	Environmental Management Laws and Regulations	
3.	Environmental Management and Coordination Act, EMCA CAP 387	http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/EnvironmentalManagementandCo-ordinationAct_No8of1999.pdf
4.	The Environment (Impact Assessment and Audit) Regulations, 2003	https://www.nema.go.ke/images/Docs/Regulations/Revised%20EIA%20Regulations-1.pdf
5.	EMCA Waste Management Regulations 2006	https://www.nema.go.ke/images/Docs/Regulations/Waste%20Management%20Regulations-1.pdf
6.	EMCA Air quality regulations of 2014	https://www.nema.go.ke/images/Docs/Regulations/air%20quality%20regulations2014-1.pdf

7.	EMCA Noise and Excessive Vibration Pollution Control Regulations, 2009	https://www.nema.go.ke/images/Docs/Regulations/Noise%20regulations.pdf
8.	EMCA Water Quality Regulations, 2006	https://www.nema.go.ke/images/Docs/water/water_quality_regulations.pdf
9.	The Environment and Land Court Act, No 19 of 2011	http://www.parliament.go.ke/sites/default/files/2017-05/EnvironmentandLandCourtAct_No19of2011.pdf
	Devolved Governance	
10.	The Physical and Land Use Planning Act, 2019	http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/2019/PhysicalandLandUsePlanningAct_No13of2019.pdf
11.	County Government, Act 2012	http://www.parliament.go.ke/sites/default/files/2017-05/CountyGovernmentsAct_No17of2012_1.pdf
12.	Nairobi City County, City bylaws	https://nairobi.go.ke/county-laws/
	Labour Laws and Regulations	
13.	Occupational Safety and Health Act, 2007	https://www.health.go.ke/wp-content/uploads/2015/09/OSH%20Act%202007.pdf
14.	Factories and Other Places of Work Act (Cap 514)	http://kenyalaw.org/kl/fileadmin/pdfdownloads/LegalNotices/2004/LN31_2004.pdf
15.	Work Injury Benefits Act, (2007)	https://www.health.go.ke/wp-content/uploads/2015/09/Work%20Injury%20Benefits%20ACT%202007.pdf
16.	Labour Relations Act 2007	http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/LabourRelationAct_No14of2007.pdf
	Public Health Laws and Regulations	
17.	Public Health Act, 1986 (Cap 242 Revised edition 2012)	http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/PublicHealthActCap242.pdf
18.	Tobacco Control Act No 4 of 2007	https://www.tobaccocontrollaws.org/files/live/Kenya/Kenya%20-%20Tobacco%20Control%20Act%20-%20national.pdf
	Cross Cutting Issues	
19.	Persons with disability Act No. 14 of 2003	https://www.treasury.go.ke/wp-content/uploads/2020/11/Persons-with-Disabilities-Act.pdf
20.	Public Participation Act 2016	https://hakicentre.org/docs/PublicParticipationBill_2016.pdf
21.	The National Gender and	http://kenyalaw.org/kl/fileadmin/pdfdownloads/RepealedSt

	Equality Commission Act 2011	atutes/NationalGenderandEqualityCommissionAct15of2011.pdf
22.	Sexual Offences Act, 2006	http://kenyalaw.org/kl/index.php?id=1894
23.	HIV and AIDS Prevention and Control Act, 2006	http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/HIVandAIDSPreventionandControlAct_No14of2006.pdf
24.	The Children Act, 2001	http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/ChildrenAct_No8of2001.pdf
25.	The Nairobi City County Sexual and Gender-Based Violence Management and Control Bill, 2019	https://nairobiassembly.go.ke/ncca/wp-content/uploads/bill/2019/The-Nairobi-City-County-Sexual-and-Gender-Based-Violence-Management-and-Control-Bill-2019.pdf

EIA regulation

In light of this and according to section 58 of the Environmental Management and Coordination Act CAP 387, it is a requirement that a proponent carries out an ESIA study before being issued with an EIA license to undertake any project activities that may be considered harmful to the environment. This includes application of the "Environment Impact Assessment and Audit Regulations of 2003" and consideration of other national legislations as captured in Chapter 3 of this ESIA.

Project Location

The proposed project shall be located on a piece of land measuring about 7.5 acres (3 hectareas), land title attached (***Annex III***) owned by the State Department of fisheries, Aquaculture and the Blue economy (SDFA&BE). The proposed project is located in Nairobi City County, Lang'ata Sub-county, South C ward, Nairobi West Location, and South C sub-location. The coordinate of the project site is latitude1°19'29.08"S and Longitude 36°50'11.31"E. See map below

Figure 0-1: Uvuvi house site Location image, courtesy of google image

Project Design

The proposed Uvuvi house office block is proposed as an eleven floors as per the attached designs in ***Annex 1a – Uvuvi House Drawings and Design***. The proposed height is of 43m approved by Kenya Civial Aviation Authority (***Annex XVI***) from the ground level; the existing tallest building under construction in the area is 42m from the ground level. Due to its location on higher ground will remain generally taller than the Uvuvi house within the general project area. The area in the space of Uvuvi house building shall be 15,710m^2 with office space taking up (83.96%), exhibition (2.86%), Auditorium (7.77%), Library (3.63%), and restaurant (1.78%) of the total space area. The concept of the building was inspired by aquatic life, borrowing a lot from nature and the culture of fishing communities as expressed in the fishing vessels. It is anticipated that the completion of the building shall add to the beauty of the skyline within the general project area.

Climate Change and Greening Measures

The design of the building has considered sustainability concepts, particularly resource use efficiency and green building. The green building concepts considered in the design include push delay taps, potted plants, solar energy and capitalizing on natural lighting, use of aluminum and glass doors, recycled medium density fibre boards, stone dust for motor instead of sand, automatic sensor light, and led light fitting among others.

The building has been designed to provide people with special needs ease of access and mobility within the building. Climate change impacts remain an issue of concern in the general project area (*South C area*). However, the proposed development shall use: landscaping concepts, constructing adequate drainage system, enhancing the capacity of the existing sewer line to accommodate the anticipated high amounts of waste water, raising maintenance holes to create pressure, and use of gate valves to mitigate against any back flows due to contaminations of sewer lines by storm water, to mitigate against any impacts of floods.

Estimated Cost

The estimated cost of the proposed development is about KShs. 999,647,279[2] (*USD. 9,996,472.79) as per the BOQs.* This cost includes construction materials, labour, environmental management, and social monitoring costs, and connection to social amenities.

Approach and Methodology

The main approach and methods employed during the ESIA study were desktop literature review and field survey, as noted in section 1.6. The desktop study involved; reviewing available published and unpublished reports, development plans, and maps to compile relevant baseline biophysical and socio-economic information about the study area. Field surveys involved

[2] *The estimate cost is according to the figures provided in the bill of quantities*

environmental and socio-economic data collection. Environmental profiling of the proposed project area was done through assessment of various environmental parameters, including; climatic factors, soils, solid and liquid waste, drainage, noise and vibrations, air quality, landscape, and aesthetic value of the proposed project area as indicated in sections 4.3 of this report. On the other hand, the socio-economic survey approach consisted of using mixed methods for data collection from various individuals and institutions both at national government offices and county government levels. Data needs were based on predetermined socio-economic parameters, as highlighted in section 4.4 and chapter 5. The units for data collection were households and key informants. The tools used to collect the data were questionnaires administered to the residents of the area and critical institutions.

Key Study Findings

The proposed project area was noted to be a highly modified habitat through anthropogenic activities, including but not limited to settlement and urbanization. The proposed project's activities trigger several national laws related to environmental management, labor, occupational safety and health, building and construction standards, and conflict management and resolutions among the key project stakeholders, as captured in chapter 3. For the anticipated activities of the construction and operation of Uvuvi house building, the application of World Bank's Safeguards policies as indicated above and the applicacion of the relevant laws and regulations of KENYA are mandatory/mandated in governing the project activities and applicable on the project at different project phases. The land use within the proposed project area was noted to be mainly for residential offices, hotels, and restaurants. The area is connected to social amenities, including but not limited to electricity, water services, public transport, sewerage services, a good communication network, tarmacked access roads, and commercial centers which were within the vicinity. Solid waste management, though it falls under the Nairobi City County Government, licensed private companies were noted to offer the service in the area. The nearest dumping site is the Dandora dumpsite. Based on the contour map of the general project site, the plot is located at a relatively lower point to the general area. The plot seems to slope northwards, with the highest point being 1652m on the southern part and the lowest point on the plot being 1648m above seal level (4 meters difference in slope).

Therefore, the plot experiences flooding incidences due to inadequate storm drainage system in the general area, with surface runoff flowing through the southern gate to the plot. Despite this, the proposed design has catered for enhancing the capacity of the drains to control for surface storm water flows before entering the plot, as indicated in section 4.3.4. Geotechnical survey findings suggested that the surface soil layer is black cotton soils, as captured in Annex III. The substratum layer consists of highly rubbled, moderately strong to strong phonolites and trachytic phonolites. The water source for Uvuvi house building is planned to be supplied by water from a borehole to be drilled as per the attached hydrogeological report in ***Annex XI*** and supplemented by Nairobi City Water and Sanitation Company as per commitment letter ***Annex XVIII***. The ambient noise level at 2 of the 4 points sampled, MP3 and MP4, were higher than NEMA

recommended standards as highlighted in ***Annex IX***. The levels were 56.6 and 56.8 LAeqdB, respectively. The 2 points were at the southern and eastern gates of the plot with access roads adjacent to the gates. Air quality survey findings showed that of all the parameters that were analyzed *(carbon monoxide (CO), Carbon Dioxide (CO_2), Sulfur Dioxide (SO_4), Nitrogen dioxides (NO_2), and Particulate Matter (PM_{10}))*, only CO_2 had levels above the NEMA recommended standards at all the 4 sampling points.

Public Consultation and Stakeholder Engagement

Public consultations and stakeholders' engagement was undertaken through administering questionnaires (***Annex Va and Vb***) in view of the existing Government Covid-19 protocol and limitation of public meetings by Governments. Stakeholders were mapped out and provided with questionnaire to fill up and provide their view on potential risk.

Summary of Public Consultation Issues

Key Issues Raised	Responses
Transparency in allocation of job opportunities/outsider's infiltration for labour/ employment	A local committee will be formed and a transparent recruitment process initiated. Locals will be prioritized for jobs.
Excited the employment opportunities will be created	This was observed by close to 90 percent of the respondent in the area.
Noise pollution during construction work	The contractor will abide by EMCA– Noise and excessive vibration pollution control generation 2009, legal notice No. 61
Management of dust during construction	The contractor will sprinkle water on dry/dusty surfaces to manage dust/ workers will be given PPE and masks
Poor drainage system around the project site	The contractor will manage the drainage system issue through basic diversion from storm water to the natural water course on the northern boundary of the plot. This is costed in the document
Pressure on the sewer lines	The design consultant has consulted with Nairobi County Government, and allocation has been made for an additional volume of sewer that is expected to be generated.
Spread of HIV/AIDS, STIs at the construction area and adjacent	The contractor will take the responsibility of undertaking HIV/AIDS prevention programs, raise awareness among the site workers and provide

site	condoms at the sites

Impacts of the Project

The proposed construction project is anticipated to have both negative and positive impacts on the residents, users, the environment and the project area in general, as indicated in chapter 6 of this report. Measures have been put in place to mitigate for the negative impacts at both construction and operation stages.

Positive Impacts

The proposed Uvuvi House project's construction is anticipated to have overall positive impacts, particularly in consolidating all institutions related to fisheries, aquaculture and blue economy under one roof, and providing the client with one stop service centre for fisheries the blue economy-related services. The positive impacts shall include: enhancing synergy and efficiency among employees, improve work productivity, maximize employee satisfaction, enhance the general economic development of the nation (GDP), save time for the client spend moving from one office location to the other**,** minimize operating costs for the clients and the organizations by sharing same resources e.g. operation costs**,** centralizing the administration of key institutions in the blue economy, the market for local construction materials, business opportunities at construction and operation particularly for eateries, enhance the aesthetic value of the project site, employment opportunities and contribute to improved management of priority fisheries and mariculture.

Negative Impacts

The proposed project activities during construction, operation, and decommissioning are anticipated to lead to negative impacts including but not limited to: Injuries and accidents to the workers during the project construction, operation, and decommissioning. Injuries to the public and any persons who visit the site of construction from falling objects, personal falls or sharp objects on the ground; visual/aesthetic value impact from stockpiles; noise from foundation excavation, movement of construction vehicles, general construction activities, persons on site, restaurants, auditoriums, and cars moving in and out of the office building; air quality degradation shall be affected by exhaust fumes, dust particles during foundation excavation activities, mixing of cement, wind action on access roads with soil particles, movement of vehicles along the access roads or trucks ferrying cut off from site; increase in solid waste and waste water; Fire hazards; water and energy consumption.

Mitigation Measures for Negative impacts During contruction

NO.	ASPECT	RATE OF IMPACT	MITIGATION MEASURES

NO.	ASPECT	RATE OF IMPACT	MITIGATION MEASURES
1.	Occupational Health and Safety	**<u>Substantial</u>** The risk and potential impacts will be substantial if the workers and the contractor do not observe safety measures on-site.	• Ensure the safety of the construction workers by putting first aid area and injury reporting mechanism • The contractor should consider having WIBA insurance policy to cushion self and workers against loss of income in an accident on site. • Have an understanding with a nearby health facility for emergency cases on-site before decisions are made. • Provide appropriate personal protective equipment (PPE) to workers and training on appropriate use. *(reflective jackets, helmets, face masks, gloves, safety boots, etc.)* • Workers working at heights of the building should have the skills, experience, and knowledge to work at such heights. The activities at height areas should be well planned and supervised by the supervising consultant through risk assessment procedures. • Use of scaffolding, railing, or other appropriate protection for workers working at heights • Site use plan and appropriate signage for different use of site area *(material offloading areas, assemblage, free areas etc)*. • Creation of awareness and training of workers on site on safety and first aid skills. • Adequate provision of requisite sanitation facilities for human waste disposal for both male and female workers on site • The workers should receive the requisite training, especially on the operation of specialized machinery and equipment. • Provide clean drinking water for the workers. • No worker should be allowed on site under influence of any form of drugs or alcohol.

NO.	ASPECT	RATE OF IMPACT	MITIGATION MEASURES
			• Contractor to develop a site safety action plan detailing safety equipment to be used, emergency procedures, restriction on site, frequency, and personnel responsible for safety inspections and controls. • Recording of all injuries that occur on-site in the incident register, corrective actions for their prevention and instigated as appropriate. • Hiring employees with proper qualifications for specialized and risky tasks. • Adhering to proper housekeeping at the contractors camp • Adherence to Covid-19 rules as provided by the ministry of health and the bank. The specific action to be captured in the contractor ESMP. • Training of workers on covid-19 rules and requirements.
2.	Public health and safety	**Minor** The impact is anticipated to be minor because the activities will be in an enclosed compound with restricted access	• Ensure the safety of residents by providing safety signs at strategic places around the access roads. • hording off working sites to protect the public or unauthorized persons • use of signs and warnings on sites with high risks • Consider having road marshals, particularly during traffic peak hours, to reduce traffic jams and potential accidents for residents of the area guidance. • Materials to be brought on-site during off-peak traffic flow in the area. • Reduce unnecessary speeding to control for accidents from the movement of pedestrians in the area. • Prior creation of awareness and sensitization of the public and the residents of any activities that are likely to have an impact

NO.	ASPECT	RATE OF IMPACT	MITIGATION MEASURES
			within adequate time 2 weeks before commencement.
3.	Visual/ aesthetic Impacts	**Low** The impact is anticipated to be low with cordoning of the project site and use of silt screens.	• Cleaning of the site and organized locating of different construction materials. • Backfilling of soil cuttings • Landscaping of the project site • Cordoning of the construction site using appropriate screening materials
4.	Leakages and spills	**Moderate** It is anticipated that the contractor will be using use vehicles which are compliant. The impact shall be temporal and of local scale	• In the event of hazardous waste leakage or spills, engage authorized waste handlers to dispose of contaminated soils. • Disposing of contaminated soils in cutting pit if volumes are low. • Use of NEMA licensed waste handlers to dispose of in licensed disposal areas. • Development of site-specific incident management or response plan. • Use of an authorized garage or fuel station in the project area by the contractor or specific concrete and oil traps should be constructed at the contractor's yard.
5.	Noise and vibrations	**Low** The volume of workers on-site during foundation excavation is anticipated to be low. The impact shall be temporal and at the local scale.	• The contractor to use equipment with low noise levels or fitted with silencers where appropriate. • Regular servicing of the equipment to reduce the possibility of noise from worn-out parts. • Informing the public about the possibility of unusual noise levels, particularly to residents and nearby offices, whenever working on such activities. • Ensure adherence to PPE by workers[3] working on excessive noise and vibration activities • Explore the viability of using soundproof

[3] The measure should be according to the law (Occupation safety and health Act 2007, National Construction Act

NO.	ASPECT	RATE OF IMPACT	MITIGATION MEASURES
			materials along the site perimeter, e.g., silt screens, to reduce noise levels. • Minimize unnecessary hooting and speeding by the contruction vehicles. • Acquire necessary licensing from NEMA for any excessive noise pollution at the site[4] , particularly while excavating the rocky areas on-site at the foundation phase of the project. • Restricting noisy activities to be during the day and with no activities at night • Regular measurement/monitoring of noise levels and devising control measures.
6.	Air	**<u>Low</u>** Most of the roads in the area are tarmacked though spillage of soil during transportation of waste and materials from the site is anticipated to contribute to the impact. The impact shall be temporal and at the local scale.	• Consider vehicles to be used on-site to meet NEMA emission standards as required under NEMA air quality regulations. • Reduce unnecessary speeding • Consider exploring the use of silt screen materials as an enclosure to the site or building to reduce blowing away of dust or cement dust from the site. • Adherence to proper uses of PPE by the workers, especially those working on activities requiring mixing of cement. • Inform the public and residents about activities with the possibility of unusual air pollutants • Suppress dust during pneumatic drilling of the foundation rock by ongoing water spraying and/or installing dust screen enclosures at the site • Consider wetting all the sand or soil materials being carried to or from the construction site. Where appropriate, cover the materials being transported to avoid being blown by the wind during transportation.

[4] Based on the noise and excessive vibration pollution control regulations, 2009

NO.	ASPECT	RATE OF IMPACT	MITIGATION MEASURES
			• Wet all dust areas or use water to reduce dust emission, including on access roads.
7.	Waste	**<u>Moderate</u>** The waste generated during construction shall be nonhazardous. The impact shall be temporal and of local scale	• Provision of mobile sanitation facilities for adequate human waste management[5] during the construction phase for workers and persons on site. • Promotion and adoption of the principles of waste avoidance, reduction, reuse and recycle. Through avoiding unnecessary generation of waste, use of debris for backfilling, use of waste materials on-site for other purposes where appropriate, or selling to recycling merchants. • Designate proper waste transfer stations onsite with controlled access. • Seek appropriate approvals from NEMA and County Government on management and Disposal of the waste[6].*(this may include using authorized disposal sites, use of NEMA authorized waste pickers/transporters, acquiring dumping certificates, and keeping proper records or use of authorized vehicles to ferry waste)* • Consider formulating a site-specific waste management plan informed by waste characterization[7]. • Observing waste management standards proposed under NEMA waste management regulations 2006. *(with a particular focus on waste separation and management before disposal)*
8.	Covid-19	**<u>Minor</u>** It is anticipated	• The Contractors will develop standard

[5] According to the Public Health Act Cap 242, 2012 and Occupation safety and Health Act 2007 requirements
[6] Waste management and disposal procedures need to be in accordance to waste management standards proposed under NEMA waste management regulations of 2006 (legal notice 121).
[7] Waste characterization should consider waste from construction site and the contractors' camp if any or any other associated liquid waste from foundation excavation activities.

NO.	ASPECT	RATE OF IMPACT	MITIGATION MEASURES
		that most of the workers that shall be enegaged will have been vaccinated and there shall be proper use of Covid-19 PPE	operating procedures (SOPs) for managing the spread of Covid-19 during project execution and submit them for the approval of the Supervision Engineer and the Client, before mobilizing to site. The SOPs shall be in line with the World Bank guidance on COVID-19, Ministry of Health Directives and site-specific project conditions; • Mandatory provision and use of appropriate Personal Protective Equipment (PPE) shall be required for all project personnel including workers and visitors; • Avoid concentrating more than 15 workers at one location. Where two or more persons are gathered, maintain social distancing of at least 1.5 meters; • Install hand washing facilities with adequate running water and soap, or sanitizing facilities at entrance to work sites including consultation venues and meetings and ensure they are used; • Ensure routine sanitization of shared social facilities and other communal places routinely including wiping of workstations, door knobs, hand rails etc.
9.	HIV/AIDS	**Low** The workers will be working while going back at home to their fanmilies. There shall be no camp for the workers to board.	• Promote HIV/AIDS prevention messaging • Install HIV testing services at the construction site • Support infected workers with ARVs • Peer counseling services at the site
10.	GBV/SEA	**Low** There is a provision for all workers to sign	• Ensure clear human resources policy at the site against sexual harassment that is aligned with national law • Integrate provisions related to sexual

NO.	ASPECT	RATE OF IMPACT	MITIGATION MEASURES
		the code of conduct before being engageged for any work at the site. And the measures contained in the code of conduct is anticipated to deter incidence of GBV/SEA	harassment in the employee COC (*Annex XVII)* • Ensure appointed human resources personnel to manage reports of sexual harassment according to policy • The Contractor shall require his employees, sub-contractors, sub-consultants, and any personnel thereof engaged in construction works to individually sign and comply with a Code of Conduct with specific provisions on protection from sexual exploitation and abuse
11.	Grievance Redress	**Minor** Their shall be a grievance redress structure that shall be put in place and any grievance is anticipated to be addressed immediately	• Establish community grievance committee at the site • Ensure staff grievance structures exist and staff are sensitized on the same

Mitigation Measures for Negative Impacts During Operation Phase

NO.	ASPECT	RATE OF IMPACT	MITIGATION MEASURES
1.	Solid waste generation	**<u>Moderate</u>** The waste generated during operation phase of the project shall mainly include municipal waste from the eateries, office waste and	• Sensitization and awareness creation among the building occupants on the significance of waste separation as well as provide for waste sorting bins at the premises with clear labeling. • Provide for a waste transfer station at the premise • Sensitization and awareness creation among the building occupants on the significance of waste recycling and separation of waste. • Procurement of NMS and NEMA approved waste collectors/handler to dispose of waste to

		operation and maintenance of facilities for instance the generator. The waste shall be managed through an authorized and licensed waste handler	approved dumping sites.
2.	waste water generation	**<u>Moderate</u>** The waste water generated shall be managed through an existing municipal sewer system present in project area. The impact is temporal and of local scale	• Regular sensitization and awareness to building occupants as well as discouragement on releasing detergents or other chemical solutions in black water system. • Regular cleaning of the wastewater drainage system • Regular and proper maintenance of the drainage system • Prompt response to any reported blockage and leakages • Sensitization and awareness of occupants from discharging or emptying any chemical solutions or oils to the sewer system. • The parking to have special oil trapping chambers. • Any leaking vehicles should be brought to the owners' attention and, where applicable, taken to the nearest garage.
3.	Fire Hazards[8]	**<u>Low</u>** Fire hazards remains a reality in the event of electrical faults, restaurant kitchen fires or deliberate arson	• Provide for fire risk and response signage where the information is short and clear • Regular fire drills for the building occupants • Regular awareness and sensitization on fire safety measures and response to the building occupants • Clear fire incidents reporting procedures and response. Ensure regular provision of

[8] The proposed fire safety measures under the design were not included here since they are already part of what shall be done

		activities	operational emergency reporting contacts. • Regular servicing and maintenance of the fire risk detection and management system. • Ensuring availability of adequate water resources at the premise at all times. • Entering into an understanding with fire risk response and management companies in the event of a fire outbreak beyond internal management capacity. (either private companies G4S or Nairobi Fire department)
4.	Water consumption	**Low** The office building shall have alternative sources of water supply including borehole on site and NCWSC supply	• Sensitization and awareness creation among occupants on significance of water conservation measures. • Regular maintenance and prompt response to leakage in the water system on the building. • Sensitization and awareness creation among the maintenance team to continue using water conservation equipment throughout the life of the building.
5.	Energy consumption	**Low** The design of the building has anticipated the use of renewable energy and energy-saving electrical appliances	• Sensitization and awareness creation among occupants on the significance of energy conservation measures • Sensitization and awareness creation among the maintenance team to continue observing the use of energy-saving electrical appliances on the building.
6.	Noise Pollution	**Low** The auditorium shall be part of noise generation on the proposed building. Other sources of noise shall be the generators that shall be used as a backup	• Sensitization and awareness creation as well as discouragement from unnecessary hooting among users of the premise and parking. • Regular serving and maintenance of the soundproof system incorporated into the building design. • Consider using silencers/muffle
7.	Occupation	**Low**	• Provide personal protective equipment to

	health hazards	The proposed building and the associated facilities shall consist of routine maintenance and repair as well as occasional cleaning which is anticipated to pose occupational health and safety issues. However with implementation of proper mitigations the risks shall be reduced.	operation and maintenance workers. • Recording all injuries that occur on-site to workers while doing their daily duties in the incident register, corrective actions for their prevention should be initiated as appropriate. • Cordoning off working sites to protect the public or unauthorized persons during repair and maintenance of the different utility systems on site • Creation of awareness and training of workers on site on safety and first aid skills. • Hiring employees with proper qualifications for specialized and risky tasks during operation and maintenance of the various utility systems. • Adherence to Covid-19 rules as provided by the ministry of health and the bank while conducting daily duties. • Training of workers on covid-19 rules and requirements. • Registering the office as a work place, • Formation of safety committee, • Training of first aiders among the regular office staff
8.	Public health hazards	**Low** Routine maintenance, movement of vehicles within the premise as well as fire risks may pose a risk to the public who shall use the building as clients or for any other reasons.	• Limit on speed while within the premise • separation of vehicle and pedestrian entry points • provision for alighting and boarding stations for workers or guests using public transport • using signage during cleaning, maintenance, or repair to warn the public • Easily accessible fire risk and emergency response information to the public visiting the premise • Use of bumps to slow vehicles • Use of zebra crossing signage
9.	Leakages and spills	**Low** The backup generators shall use fuel which is	• Cleaning the backup generator regulary and checking for leaking parts which if spotted should be tightened if loose or replaced immediately • Regular servicing of the generator to avoid

		expected to spill or leak during operation. The spilling and leakage is also anticipated during routine maintenance. However the risk is anticipated to be low	spillage • Cleaning up fuel spills immediately it occurs and disposing off fuel-soaked absorbent materials

Conclusion

Fisheries-related institutions face accommodation challenges which have led to being accommodated in different buildings and locations within Nairobi city. The existing situation poses challenges to service delivery, and there was a need to consolidate the offices under one roof, which informed the essence of the Uvuvi house construction project. The proposed sub-project falls under the World Bank's support to the government through investment lending to transform and strengthen sectors related to the blue economy under the KEMSFED project. Uvuvi house office block shall be eleven floors high with a height of 43m from the ground level. The area in space of the building is estimated for 15,710m^2 with office space, exhibition, Auditorium, Library, and a restaurant. The building, in addition, shall have ground floor parking with a capacity of 200 cars. The project generally has positive impacts, and for the negative impacts, mitigation measures have been proposed. The proposed project area was noted to be a highly modified habitat through anthropogenic activities, mainly from the settlement. As mandated by the laws guiding and governing the project activities, several institutions will have different roles on the project at varied phases of the project.

Proposed institutional arrangements

Regulatory Supervision of Uvuvi House Construction and Operation Phases.

NO.	INSTITUTION	RESPONSIBILITY
1.	*National Construction Authority (NCA)*	Monitor compliance to design, construction, operation, and maintenance standards of the proposed building and the associated facilities.
2.	*Nairobi City County Government*	Issuing of various permits and provision of associated social services.
3.	*Nairobi County Environment Committee*	Ensuring the project adheres to environmental standards
4.	*State Department of Fisheries Aquaculture &*	Through KEMFSED, a GoK and World Bank funded project, SDFA&BE shall finance and provide technical

	Blue Economy	support in monitoring compliance to design, construction, operation, and maintenance standards of Uvuvi house office building and the associated facilities under the proposed project. Daily operation and maintenance of the proposed office building at the operation phase.
5.	*Nairobi Water and Sanitation Company (NWSCO).*	Provision of water and sewerage services to the proposed Uvuvi house office building.
6.	*National Environmental Management Authority*	Shall be in charge of overall management and coordination of all matters relating to the environment in the proposed development area through the County Director of Environment.
7.	*National Environment Tribunal*	Resolves conflicts between NEMA and any of their clients regarding the environment.
8.	*Environment and Land Court*	Any matter that cannot be resolved between Uvuvi house and NEMA pertaining to the environment shall be addressed by the court
9.	*Directorate of Occupational Health and Safety Services (DOSHS)*	The directorate shall ensure compliance with the OSH Act 2007 and promote workers' safety and health, particularly during the operation of the proposed building.
10.	*County Commission*	Resolve any security issues on site and maintaining public order.
11.	*Kenya Power and Lighting Company (KPLC)*	Supply electrify to the proposed building and ensure that all electrical connections comply with safety standards.

Project Implementation and Supervision Instititional framework

No.	Institution/persons	Responsibility
1.	World Bank Safeguards Team	Provide general guidance and overseeing the implementation of Uvuvi House ESIA in accordance to the Bank's safeguards operational policies and procedure requirements.
2.	SDFA&BE	The state department shall oversee the implementation and supervision of project related activities, including all safeguards requirements, during operation and decommissioning phases of the project.

3.	National Project Coordinator KEMFSED	Provide the link horizontally between Uvuvi house construction implementation team and vertically between the project implementing team, the Bank and the national policy makers (NPTAC and NPSC).
4.	Project Supervising Engineer	Link the construction team and KEMFSED National project coordinator unit (NPCU)
5.	NPCU-Safeguards Specialists	Ensure construction activities are carried out in line with national laws, World Bank safeguards operational policies and safeguards instruments prepared under the project (ESIA). Capacity Build the contractors team on safeguards issues
6.	Project Supervising Consultant	Representing the client and general contract management
7.	Consultant's ESHS expert	Assist the contractor in preparation of safeguards tools required and reporting responsibility
8.	*Project Implementing Contractor*	Implement the proposed sub-project according to contractual obligations
9.	Contractor ESHS expert	Ensure implementation of safeguards requirements during project implementation

Project Supervision organogram is attached on ***Annex XX***

Mandatory Measures

The construction of the proposed Uvuvi House Office building is anticipated to generate important benefits to the national fisheries sector. Its construction will have some environmental and social impacts that can be controlled and reduce with proper clauses in the bidding document (**Annex XIV**), including the cost in the Bill of quantities and in the contract with contractor. In spite of the anticipated environmental impacts, with proper mitigation measures, the project is environmentally viable. The environmental and social assessment team of this ESIA proposes the implementation of the project with the following requirements which need to be included in the Bid document or tender document to hire the contractors and subcontractors

- The contract between the National Project Coordination Unit of the State Department of Fisheries, Aquaculture and Blue Economy (SDFA&BE) and the contractors
- The subcontracts of the contractors which subcontracts will be accepted and cleared by the Engineer in charge of the supervision of the works. This Engineer will be responsible that the subcontractors enforce and applied all measures included in this ESIA, Environmental Techncal clauses included in the bidding document and contracts.

- The NPCU is responsible to ensure in the Bill of Quantities the costing of the Environmental, health and safety measures is included as described in this ESIA or any additional included after; contractors include in its offer the budget to implement these measures.
- The NPCU to hire a supervision team including the Supervision Engineer, Environmental Health and Safety Manager, Environmental and Health and Safety officers, Labor and Social officer.
- The project supervising team formed by the engineer and environmental and social manager and EHS, Labor and Social officers , and KEMFSED environmental and social safeguards team, to ensure full implementation by contractors and subcontractors of the ESMPs during construction/implementation stage
- The contractors Engineer and Environmental, Health and Safety Manager, Environmental and Health and Safety officers, Labor and Social officer to prepare a Construction ESMP to be implemented in construction by the contractor and all its subcontractors.
- The contractors Engineer and Environmental, Health and Safety Manager, Environmental and Health and Safety officers, Labor and Social officer to prepare an Operation ESMP (EMoP) to guide the operation and maintenance of the building by the State Department of Fisheries, Aquaculture and Blue Economy (SDFA&BE) to do so during operation and decommissioning stages of the project as required.
- The project implementing agency (SDFA&BE), contractor, and the supervising engineer ensures that ministry of health and world bank covid-19 guidelines are implemented to the later at the project site during the construction period and that all the workers commit to observing the rules. SDFA&BE to ensure the covid-19 rules are adhered to during operation of the building.
- The project contractor and the supervising engineer together with KEMFSED environmental and social safeguards team to ensure that compliance with GRM and sensitization and awareness is created among construction workers, contractor, subcontractors and the general public, on project Grievance Redress Mechanism (GRM) structures in place in the event of a need to address or report any emerging issues, Gender based violence and Sexual Exploitation Abuse on site or any complains by residents in the area.
- The contractor shall be required to engage the services of NEMA approved environmental safeguards specialist to work with the supervising engineer to assist in implementing the recommendations in GRM, ESMP and EMoP as well as any emerging issues during project implementation period.
- There is need for SDFA&BE in consultation with other neighbouring stakeholders and the county government at operation phase of the project, to improve and maintaining the drainage system along Paupau road from the junction with Red Cross road. The stakeholders to be consulted shall include proposed Mugoya residential construction management, Elagance hotel, KEBS, Madina estate, Kenya Assemblies of God church and Dafam Hotel, Kenya-Re gardens estate and Kenya ports Authority estate among others. The consultation shall be in addition to the proposed mitigation measures at Uvuvi house project level as indicated in section 4.3.4.

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LIST OF ABBREVIATIONS AND ACRONYMS

AOI	Area of Interest
CHIRPS	Climate Hazards Center Infrared Precipitation with Station
EA	Environmental Audit
EAP	Environmental Action Plan
EIA	Environmental Impact Assessment
EMCA	Environmental Management and Coordination Act
EMoP	Environmental Monitoring Plan
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
FAO	Food and Agriculture Organization
GBV	Gender Based Violence
GDP	Gross Domestic Products
GRM	Grievance Redress Mechanism
KAA	Kenya Airports Authority
KCAA	Kenya Civil Aviation Authority
KEBS	Kenya Bureau of Standards
KeFS	Kenya Fisheries Service
KEMFSED	Kenya Marine Fisheries and Socio-Economic Development Project
KFMA	Kenya Fish Marketing Authority
KNEC	Kenya National Examination Council
KPLC	Kenya Power and Lighting Company
NCCG	Nairobi City County Government
NCIDP	Nairobi City County Integrated Development Plan
NCWSC	Nairobi City Water and Sewerage Company
NEMA	National Environment Management Authority
OHS	Occupational Health and Safety
PPE	Personal Protective Equipment
SDFA&BE	State Department of Fisheries, Aquaculture and the Blue Economy
SEA	Sexual Exploitation and Abuse

1. INTRODUCTION

1.1. Background

Although Kenya's marine resources are of strategic value to national and local coastal economic development, the blue economy sector remains hampered by several challenges. To exploit the potential and attain economic benefits from the coastal and marine resources, the Government of Kenya, through SDFA&BE, requested the World Bank to support the development of the sector through the Kenya Marine Fisheries and Socio-Economic Development (KEMFSED) project. The project shall enhance the blue economy sector to support coastal livelihoods and contribute to food security. As part of the efforts under KEMFSED project to strengthen institutions in the development of Kenya's blue economy, funding has been committed for the construction of fisheries headquarters building in Nairobi to house key institutions undertaking and providing fisheries-related functions and services. The entities to be housed in the Uvuvi house shall include the State Department of fisheries, Aquaculture and the Blue economy (SDFA&BE), Kenya Fisheries Service (KeFS), Kenya Fish Market Authority (KFMA), Kenya Fish Levy Funds, and Kenya Fisheries Advisory Council among others.

However, such an infrastructure's construction, operation, and decommissioning activities can have social and environmental implications if not well anticipated, enhanced or mitigated. Therefore it is essential to appreciate the environmental and social significance and site conditions likely to be influenced by the sub-project activities. This shall be in line with the World Bank OP 4.01 and section 58 of the Environmental Management and coordination Act CAP 387, which requires a project proponent to carry out an ESIA study before being permitted to undertake activities considered harmful to the environment. This includes observance of other national legislations guiding public participation and consultation, conservation, management and utilization of natural resources.

And in response to the requirements of the law, the State Department of fisheries, Aquaculture and the Blue economy (SDFA&BE) has contracted Zenith Spatial Planning Agency Ltd in a joint venture with Aprim consultant limited to assist in preparing an Environmental and Social Impact Assessment (ESIA) project report for the proposed construction of Uvuvi house. Undertaking the ESIA project study for the proposed sub-project allows for early identification of key environmental and social issues that need to be considered during the project's implementation, operation, and decommissioning. This will improve the overall understanding of the project's possible positive and negative impacts, hence increasing its environmental and social sustainability.

1.2. Proposed Project Objectives

The project development objective is to improve priority fisheries and mariculture management and increase access to complementary livelihood activities in coastal communities. The aim of the sub-project is part of support to infrastructure development under KEMFSED through the

construction of the Uvuvi house as the fisheries headquarters in Nairobi. The construction of the Uvuvi house is aimed at housing key entities undertaking and providing fisheries-related functions and services. Therefore, bringing key fisheries institutions at one point is anticipated to come in handy to enhance consolidated fisheries management in the country.

1.3. The rationale for the ESIA study

The proposed sub-project falls under the World Bank's support to the government through investment lending towards transforming and strengthening sectors related to the blue economy. The proposed construction of Uvuvi house activities will thus trigger the Bank's Safeguard Policies *(OP 4.01 Environment Assessment) and occupational health and safety requirements* which requires undertaking environmental and social due diligence.

Also as required by Kenya's EIA requirement of section 58 of the Environmental Management and Coordination Act CAP 387, it is mandatory that a proponent carry out an ESIA Study before being issued with an EIA license (already issued – ***Annex VIII***) to undertake any project activities that may be considered deleterious to the environment. This includes compliance with the Environment Impact Assessment and Audit Regulations of 2003 and consideration of other national legislations guiding conservation, management, and utilization of natural resources. Therefore, the assessment under this study was to identify significant potential impacts of the project to the project site's physical, biological, social, and economic aspects.

1.4. Objectives and Scope of the ESIA Project Study

1.4.1. General Objectives of the ESIA study

The study's primary objectives were to undertake an ESIA of the proposed civil works following NEMA and World Bank requirements. The specific objectives of the assignment, therefore, focused on;

- Identifying significant potential impacts of the proposed project to the physical, biological, social, cultural, and economic environment during all the project phases (design, construction, operation, and decommissioning).
- Define measures to mitigating any adverse impacts to the environment, social and occupational health, and safety throughout all phases of the project while enhancing the positive impacts.
- It is anticipated that this will ensure the proposed project is environmentally friendly, socially acceptable, and sustainable.

1.4.2. The Scope of ESIA Assignment

The TOR informed the scope of the ESIA project study provided for the assignment as indicated in the main objective of the ESIA study.

- A concise description of the national environmental legislative and regulatory framework for implementing and managing the proposed construction of the Uvuvi house and the associated facilities.

- Concise description of the project design including technology, materials, by products, procedures and processes to be used during project construction, operation and decommissioning.
- Conduct a baseline assessment and description of the project area's physical, biological, social, cultural, and economic environment.
- Conduct an assessment of environmental and social impacts due to the proposed development.
- Conduct public consultations and participation
- Identify mitigation measures for negative impacts as well as enhancing measures for the positive impacts of the project.
- Develop an environmental and social management plan (ESMP).
- Develop an environmental monitoring plan (EMoP)
- Development of occupational health and safety plan capturing aspects of gender-based violence GBV, sexual exploitation, and abuse SEA
- Prepare Grievance Redress Mechanism (GRM)
- Prepare Stakeholder Engagement Plan
- Acquire NEMA EIA license

1.4.3. Key Assignment Deliverables

According to the TOR for the assignment, the consultant was required to prepare the following documents;

- Prepare an ESIA project report compliant with NEMA and World Bank requirements
- Grievance redress mechanism structure
- Stakeholder Engagement Plan
- Occupational Health and Safety Plan
- Submit the report to NEMA for approval and issuance of EIA license

1.5. Justification of the Project

The fisheries-related institutions face accommodation challenges which have led to being accommodated in different locations within Nairobi city. The existing situation poses challenges to service delivery with extra movement costs to the client and the organizations. In order to address such specific challenges within the blue economy setup, there was a need to undertake fisheries infrastructure development to develop and strengthen the capacity of Kenya's fisheries-related institutions. Therefore, the proposed construction of Uvuvi house is anticipated to consolidate all institutions under one roof and provide the client with a one-stop service center for fisheries and the blue economy-related services. The proposed project shall come in handy to: centralize the administration of key institutions in blue economy, minimize operation costs for the clients and the organizations, reduce time wastage shuttling between offices, maximize employee satisfaction, improve work productivity, and create harmony among institutions to enhance synergy and efficiency.

1.6. The Study Approach and Methodology

1.6.1. Desk Review

A desktop study was conducted to review available published and unpublished reports, KEMFSED project documents, sub-project proposal document, Uvuvi house geotechnical report, ambient air quality assessment report, ambient noise level report and proposed project design report, the development plan for Nairobi County, and maps to compile relevant baseline biophysical and socio-economic information about the study area. Biophysical information is intended to compile data on environmental aspects such as topography, drainage, soils, geology, hydrogeology, climate, and vegetation. On the socio-economic aspects, the study collected information on factors such as social amenities and physical infrastructure, land use and ownership, institutions, and institutional management. The document review also aimed at a concise description of the proposed sub-project.

1.6.2. Field Survey

1.6.2.1. Environmental Data Collection

The environmental study team conducted several environmental parameter surveys, including air quality surveys, noise and vibration surveys, hydro-geological survey and geotechnical surveys for the proposed Uvuvi house construction site. The survey findings for air quality and noise levels shall be applicable as a benchmark while monitoring the same parameters in the subsequent phases of the proposed project. The water quality results from NCWSC was requested to establish whether the proposed tap water supply source for the Uvuvi house office building meet domestic water supply standards. The geotechnical survey findings were used to understand the construction ground's stability and determine the possible impacts on noise and excessive vibrations during foundation excavations.

General Environmental Profiling

The environmental team undertook general profiling of the project area through field observations, informal interviews with residents, taking photos, and making professional judgments regarding the project site and its environs. The focus was on understanding existing social amenities, solid and liquid waste management, neighbourhood land use, human activities around the area, climate change impacts, topography, and the site's aesthetic value, among others.

Ambient Air Quality and Noise Levels survey

The air quality and noise levels were conducted on the 27th of August 2021 (finding are attached on ***Annex IX***) at the proposed Uvuvi house construction site. Air quality survey involved measurement of concentrations of oxides of carbon (CO_x), oxides of sulfur (SO_x), Nitrogen oxides (NO_x), and Particulate Matter (PM_{10}). The noise and air parameters measurements were carried out at four different locations within the precincts of the site. The survey process began by determining the sampling points indicated on the google earth image of the project site in Figure 1-1. The air quality and noise sampling points were from the same sampling points

marked as MP1 to MP4. The sampling points were determined following a site inspection by the air quality and noise survey specialist.

Figure 1-1 : Google Earth Image of Noise and Air quality sampling points

Air Quality Survey

The particulate matter sampling was done using TSI dust trak-8520, particulate air monitoring equipment. The TSI dust trak is a portable-area monitoring instrument with a laser-photometer that measures and store concetration levels of airborne dust levels over time. The particulate matter sampling was also done using a pumped air sampler. The sampler was positioned with the intake upward in an unobstructed area, free from any obstruction to airflow.

The concentrations of CO, CO_2, SO_2 and NO_2 were determined using dragger tubes connected to a dragger 640530 CMS analyzer set with an integrated data recorder, LCD display, and AA battery which works at 0-40^oC. The dragger CMS chip measurement system uses an analyzer and substance-specific chip to obtain accurate, reliable measurements of gas and vapour concentrations. Bar code in each chip contains specific information such as gas type eg CO, CO_2, SO_2, and NO_2 measurement range and other necessary parameters for measurement evaluation when the chip is inserted into the analyzer, the bar code is read and interpreted. Mass flow regulated pump system draws a constant flow of sample through the chip, compensating for any pressure fluctuation. The calibration scale is prepared in the engineering units ppm (parts per million).

Ambient Noise and Excessive Vibration Survey

The noise level measurement was performed using cirrus sound level meter Type 1 with data logging system complying with the latest IEC 61672:1999 standards as well as IEC 60651 and IEC IEC 60804 for compliance with virtually all noise measurement regulations as well as ISO 19961:2003 and ISO 3095:2001 for the measurement and assessment of environmental noise.

The sound level meters were calibrated before and after the measurement sessions with an acoustic calibrator, 94 dB-104 dB, 1 kHz field calibrator. The noise measurements were performed for 15 minutes and extrapolated for a period of 24hours to generate results suitable for comparison to the national and international guidelines. The continuous A-weighted equivalent sound pressure level LAeq of 15 minutes duration was taken Leq occurring maximum level (Lmax) and minimum (Lmin), during the survey period were recorded. The measurement was appropriate for the determination of;

- The noise level for the project scenario
- The background noise ie when no activities are contributing to the ambient noise levels.
- The nature and extent of the noise level

The noise level measurements were performed taking into consideration the weather conditions requirements specified by ISO 1996 procedure

Geotechnical Survey

The geotechnical investigations process at the Uvuvi house project site consisted of drilling of field boreholes, insitu tests, field observations, and laboratory tests. The field surveys were conducted between, 27th to 29th of March 2021 (***Annex II***). The field survey process was according to BS5930-2015 (code of practice for site investigation). The method of field investigations consisted of drilling and sampling 3 No. Exploratory boreholes to a maximum of 1.8m below existing grade, 2 No. boreholes drilled to a depth of 10m and 1 No. The borehole was drilled to a depth of 15m below the existing grade. The laboratory tests were done as per the British Standards (CBS1377), the American Society for Testing Materials (ASTM) designated D 2938-79 and D2845-00.

1.6.2.2. Socio-economic Data Collection

Public consultations and stakeholders' engagement were undertaken through the questionnaire in view of the existing Government Covid-19 protocol and limitations placed on holding public meetings by Governments. Stakeholders were mapped out and provided with questionnaires to fill up and provide their views on the project's potential risks. Key informants were also provided with semi-structured and open-ended questionnaires, including Kenya Redcross, Kenya Directorate of Resource Survey & Resource Sensing; National Environmental and Management Authority; Kenya Bureau of Standards. The collected data was analyzed and synthesized in this report. The consultation process focused on residents' and key informant perception on labor-related issues on-site, noise, air quality, drainage within the project area, impacts on the sewer line, HIV/AIDs, and STI impacts in the area, among other issues.

1.6.2.3. Project Impact Rating and Evaluation

The significance of the impacts was rated using the criteria highlighted on Table 1-1. The rating of each impact considered a combination of several factors including; temporal scale, spatial scale, the likelihood of occurrence, the magnitude of impact to receptor in the event of occurrence and the available/effectiveness of mitigation measures. The higher the severity of the

impact based on the criteria, the higher the ranking and the significance of the impact was based on overall total score after suming up all the ranking scores of the impact. A scale was developed to assist in attaining the overall impact significance as indicated in the last column of the table.

Table 1-1: Impact rating Criteria

No.	Significance of Impact	Temporal	Spatial Scale	Likelihood of occurrence	Magnitude/Intensity of impact to receptor	Availability of mitigation measures	impact ranking/Overall score
1.	High	Permanent (*More than 40 years)*	Global/ regional /national scale affecting cross boundary ecosystem services	definite to occur	high (severe altering)	unknown mitigation measures that can only be avoided to limit its risks	5 (21-25)
2.	substantial	long term*(between 20-40 years)*	county level	high possibility of occurrence	Medium (notable altering)	limited and impractical mitigation measures	4 (16-2o)
3.	moderate	medium term *(between 5-20 years)*	sub-county level	possibility of occurrence	low (slight altering)		3 (11-15)
4.	minor	short term *(between 1-5 years)*	Project site and its immediate environs (*within a radius of 500m-1Km)*	probable occurrence	very low (negligible altering)	have mitigation measures	2 (5-10)
5.	Low	Reversible *(less than a year)*	confined to project site (*within a*	unlikely	zero (no altering)	Well known, most effective and	1 (1-5)

	radius of 500m)		practical mitigation measures

1.7. ESIA Project Report Study Team

The State Department of fisheries, Aquaculture, and the Blue economy (SDFA&BE) contracted Aprim and Zenith Spatial Planning Agency Ltd to assist in design review, prepare an Environmental and Social Impact Assessment (ESIA) project report, and construction supervision of the proposed construction of Uvuvi house office block. Environmental scoping and subsequent preparation of the ESIA project report were accomplished through several experts' involvement with varied inputs. The assignment team composition is as indicated in Table 1-2.

Table 1-2: ESIA Study Team

NO	NAME OF EXPERT	PROPOSED POSITION
1.	Fred Wasike	EIA/EA Lead Expert No. 1172
2.	Weyusia D. Zinny	EIA/EA Expert No. 7557
3.	Vinicent Oduk	Noise and air quality expert
4.	Douglous Ayienda	Geotechnical expert
5.	Wilfred Onyango	Surveyor
6.	Eng. Austin Ngunyi	Mechanical/Electrical
7.	Eng. Hesbon Omondi	Civil/structural engineer
8.	Felician Tunduli	Architecture
9.	Eric Ndaiga	Quantity Surveyor
10.	Tonny Odongo	Assistant Physical Planner
11.	Joseph Mutua	Associate Expert/Physical Planner
12.	Godfrey Wabomba	Environmental Safeguards Specialist KEMFSED Project -Reviewer
13.	Lazarus Kubasu	Social Safeguards Specialist KEMFSED Project-Reviewer

1.8. Content and Structure of the Report

1.8.1. Purpose of the report

This report is intended to meet the overall assignment objectives of carrying out an ESIA project report study for the proposed construction of Uvuvi house and the associated service delivery facilities in accordance with statutory requirements by NEMA on projects under EMCA CAP 387 schedule II. The report will assist NEMA and lead agencies in the decision-making process and ensure that the sub-project activities comply with sound environmental management practices. The report is also intended to assist the project proponent State Department of fisheries, Aquaculture and the Blue economy (SDFA&BE), Nairobi County Government, the Financing agency, project supervising engineer and the contractor in their obligation of maintaining environmental integrity during the overall management of the project activities during design, construction, operation and decommissioning.

1.8.2. Structure of the Report

To clearly highlight and understand environmental and social issues that will occur due to project implementation, operation and decommissioning process, the ESIA project report has been structured to cover areas required under EMCA, CAP 387 and Environmental Impact Assessment and Audit regulations 2003. The report is also consistent with the international best practices. The ESIA project report contains ten chapters as outlined below;

- Chapter 1 introduces the project in general, giving the background, project justification, study methodology, and rationale used to achieve the objectives of the project study.
- Chapter 2 describes the project components and the various alternatives considered for implementation.
- Chapter3 highlights the environmental policy, legal and institutional framework that will inform the overall management of the project and its components at various stages of the project cycle. Local, national, and international legal instruments and best practices have been considered.
- Chapter4 outlines existing environmental baseline information including physical, biological and socio-economic conditions of the project area. The content in the chapter also highlights how the project will influence or be influenced by the baseline conditions.
- Chapter 5 summarizes the public consultative process and the outcomes
- Chapter 6 give the project impacts both positive and negative that are anticipated due to implementation, operation, and decommissioning phases of the proposed development of the Uvuvi house office building
- Chapter 7 presents the project Environmental and Social Management Plan (ESMP)
- Chapter 8 presents Environmental Monitoring Plan (EMoP), outlining impacts that require supervision and monitoring during project implementation, operation, and decommissioning stages
- Chapter 9 presents a proposed procedure during decommissioning activities of the office block and the associated facilities if it becomes obsolete.
- Chapter 10 presents the EIA project study team's conclusions and recommendations

2. PROJECT DESCRIPTION

2.1. Chapter Overview

The chapter describes the proposed construction of Uvuvi house office building, project location, Uvuvi house project objectives, proposed project design, project activities, project resources and by-products, project alternatives and the estimated financial cost of implementing the proposed works. The description is based on proposed works under the project design report.

2.2. Project Location

The proposed project shall be located on a piece of land measuring 7.5 acres (3 hectares) owned by SDFA&BE, the title is attached on ***Annex III***. The proposed project is located in Nairobi City County, Lang'ata Sub-county, South C ward, Nairobi West Location and South C sub-location. The coordinates of the project site are latitude1°19'29.08"S and Longitude 36°50'11.31"E.

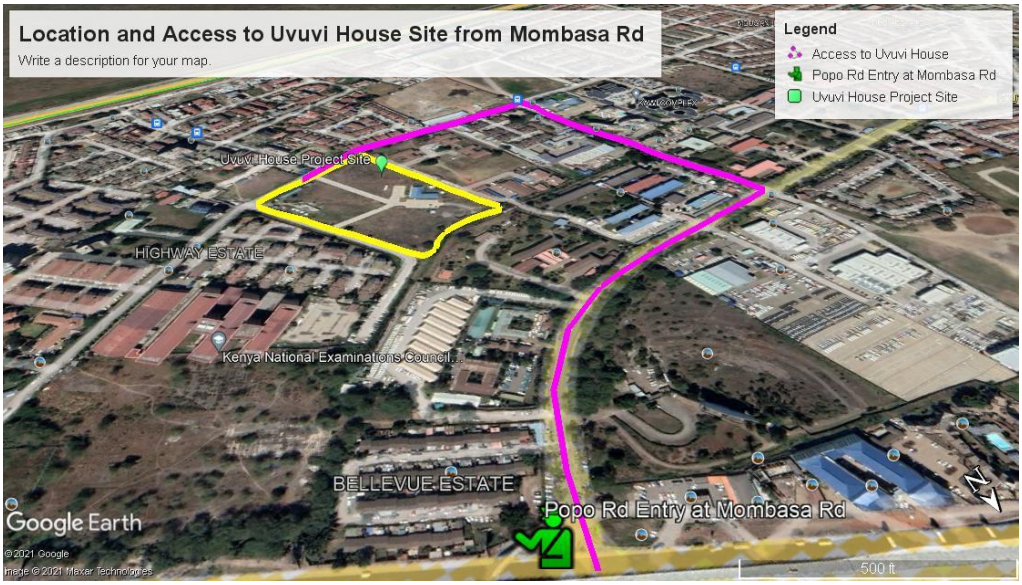

Figure 2-1: Image of Access to Uvuvi Hoouse site *(courtesy of google eath)*

2.3. Uvuvi House Project Development Objectives

To consolidate all institutions related to fisheries, aquaculture, and blue economy under one roof and provide the client with a one-stop service center for fisheries and blue economy-related services. This shall: enhance synergy and efficiency among employees, improve work productivity, maximize employee satisfaction, save time for the client spend shuttling from one office location to the other**,** minimize operating costs for the clients and the organizations by sharing the same resources and contribute to improved management of priority fisheries and mariculture.

2.4. Project Design

2.4.1. Architectural Designs

The proposed Uvuvi house building concept was inspired by aquatic life borrowing a lot from nature and the culture of fishing communities, expressed in fishing vessels as indicated in Figure 2-2 and Figure 2-3. The full drawing and design for the project are attached under ***Annex I.***

Figure 2-2: Image depicting Yatcht on the left and an aquatic skeleton on the Right

Figure 2-3: Image depicting Fish (skeleton) fin

The design of the building (***Annex I***) was influenced by several considerations, including topography, existing infrastructure, building orientation, environmental sustainability factors, privacy and noise gradient, accessibility and mobility of people with special needs, access and way-finding, and Covid-19 considerations. The proposed Uvuvi house office block shall be eleven floors high with a height of 43m from the ground level. The area in space of Uvuvi house building is proposed to be 15,710m^2 with office space taking up (83.96%), exhibition (2.86%), Auditorium (7.77%), Library (3.63%), and restaurant (1.78%) of the total space area. The proposed space accommodation of the building is as captured in the design drawings attached in Annex I-A. Table 2-1 below is a summary of proposals of how the spaces of the building shall be utilized and the type of finishing envisioned as captured from the design report.

Table 2-1: Proposed space accommodation of Uvuvi House

SPACE	SUB-SPACES	PROPOSED FINISHES
Grandeur entrance.	• 10 riser steps and pedestrian ramps. Full body scanner.	25mm thick granite floor slabs.
Double volume Main entrance hall.	Executive reception/waiting lounge.	25mm thick granite floor slabs. Water creatures paintings and murals on the wall
Double volume exhibition	Display cabinets and galleries.	Heavy-duty floor timber planks and various floor

hall		highlights depending on the exhibit.
There shall be circulation core Lobby on the Ground Floor Wing A, 1st floor Wing A, 2nd floor Wing A and from 3rd to 10th floors	• Fully furnished VIP waiting Lounge. • 3No. Passenger lift. • Main circulation stairs. • Fire escape stairs	25mm thick granite floor slabs. Clear glass partition for the VIP lounge and lift. Leather seats furnishing for the VIP lounge.
The licensing Department	• Waiting lounge Licensing clerks' offices	Heavy-duty floor finishes such as terrazzo.
Wing B circulation Lobby	• Main circulation stairs. • Auditorium breakout space. Auditorium sound rock. • Public washroom	25mm thick granite floor slabs. Temporary reception during major Auditorium activities
Auditorium hall	• Main raked sitting area Fore stage Main stage	Anti-static carpet as a floor finishing. Heavy-duty floor timber planks and various floors.
Auditorium preparation back stage	• VIP waiting lounge Changing and dressing rooms Make up tables Rehearsal's hall Circulation stairs	Heavy-duty floor timber planks and various floors.
Overlooking balconies	Void	25mm thick granite floor slabs. High safety Clear glass handrail.
Meeting rooms 01 and 02		Wall padding and other recommended acoustic design features.
Wing B circulation Lobby	• Main circulation stairs. • Auditorium breakout space. • Auditorium sound rock. • Auditorium Control room. Auditorium Management offices • Auditorium hall • Fire escape stairs	25mm thick granite floor slabs. Temporary reception during major Auditorium activities. Anti-static carpet as a floor finishing.
Auditorium back stage		Heavy duty floor finishes and

management offices		high- quality furniture
Meeting rooms		Wall padding and other recommended acoustic design features.
Restaurant	• Commercial kitchen. • Cooking islands • Stores. • Worktop. • Indoor dining. Outdoor dining.	Non –slip floor tiles approved by the architect Stainless steel worktop for easy cleaning. Loose furniture seating for indoor seating. Provision weather resistance furniture for the outdoor sitting.
Library	• Library check in and out counter • Librarian office. • Online library section. • Outdoor library break out space.	Heavy duty floor finishes and high- quality furniture Comfortable reading seating and tables. Provision of informal seating at the library breakout terrace. Clear glass partition for the librarian office.
Wing B circulation Lobby	• Main circulation stairs. • Library breakout space. • Public washroom • Fire escape stairs	25mm thick granite floor slabs. Temporary reception during major Auditorium activities Anti-static carpet as a floor finishing
Wing A Office space (KeFS)	• Human resource • Legal department • Procurement • Account Department. • Indoor dining.	Clear glass partition for the offices. Typical office desk with desktops and power points.
Wing B Office space (KFMA)	• Registry and filing • Registry Clerk office/waiting area. • Accounting office • Accounting strategist/washroom • Head of finance/washroom • KFMA‘s CEO’s Office. / Secretary/ executive lounge/ washroom. • Meeting rooms • Procurement department	Clear glass partition for the offices. Typical office desk with desktops and power points. The CEO’s office should have high quality seats, air conditioning. Provision of audio- visual equipment for executive meeting room

	• Executive meeting room. • KFMA's open plan Office. • Fire Escape stairs	
Wing A Office space (KeFS)	• Principal fisheries officer's offices.	
Wing B Office space (SDFA&BE)	• Open plan office • Executive boardroom • Common kitchenette • Kenya fisheries Secretariat • Director technical office/washroom • Director human resource/washroom • Accounts department • Finance director/washroom • Technical personnel • Procurement department • Outdoor breakout terrace.	Clear glass partition for the offices. Provision of audio- visual equipment for executive meeting room Provision of informal seating at the breakout terrace
Fifth floor Office space (KeFS)	• MCS team room 01 • MCS team room 02 • MCS team room 03 • VMS room • Closed registry • Strong room • Clerk's office • Nursing room • Staff breakout room • Indoor games room	Loose furniture seating for indoor staff breakout room
Sixth Floor Office space(KeFS)	• Finance office • Procurement • Accounts • Registry • Cashiers' office • Technical department • Legal counsel Human resource • Boardroom	Clear glass partition for the offices. Provision of audio- visual equipment for in the boardroom.
Seventh Floor Executive Office space (KeFS)	• Head of finance • Head of procurement • Head of human resource • Company secretary • Head of legal affairs	Leather seats furnishing for VIP standards. Provision of air conditioning. Provision of storage cabinets.
Eighth floor Executive Office	• Chairperson of the board.	Leather seats furnishing for VIP standards.

space (KeFS)	• Common reception and waiting room • Shared boardroom • Technical director	
Ninth Floor Executive Office space	• Director General • Executive reception/lounge • Shared kitchenette • Shared boardroom	Leather seats furnishing for VIP standards.
Tenth floor Executive Office space	• Head of ICT. • Server room • Database manager • Data entry	Leather seats furnishing for VIP standards. Provision of air conditioning.
Eleventh Floor Service Floor	• Lift Machine room • Water tanks • Data communication equipment.	The floor shall be waterproofed.
Parking Space	• The parking shall be underground and shall carter for 100 cars	

2.4.2. Structural Design of the proposed Building

The proposed structure was envisioned to be a rigid frame structure. It's envisaged that the slabs, beams, columns, shears walls, and bracing shall be used to transmit forces to the foundation. The vertical forces will be transmitted to the ground by columns and walls, and lateral forces will be transmitted by shear walls or direct forces in the bracings. Geotechnical analysis findings were used to design the foundation of the structure. The civil and structural design for the building was derived from:

- Architectural layouts, elevations, sections, and renders
- Site surveys which included geotechnical survey and physical survey
- Survey data which provided spot heights and contour levels

2.4.2.1. General Loading Conditions

- Floors (Office): Live load = 2.5 KN/m2 (Bs6339-1; Table 1).
- Floors (Restaurant): Live Load= 3.0KN/m2 (Bs6339-1; Table 1).
- Floors (Auditorium): Live Load= 4.0KN/m2 (Bs6339-1; Table 1).
- Stairs: Live load = 4.0 KN/m^2 (Bs6339-1;Table 1).
- Finishes = 1.0 KN/m^2 (Estimated from BS648:1964).
- Partitions= 2.0 KN/m^2 (Bs6399-1:Cl5.1.4).
- Basic Wind Speed=20m/s (Meteorological Data).

2.4.2.2. Material Characteristic Strengths

Concrete:

Class 25 (Nominal Mix1: 11/2: 3)
7 Days Cube Strength = 17N/mm^2.
28 Days Cube Strength =25N/mm^2.

Reinforcing Steel:

Main Bars fy = 500N/mm^2.
Links fy = 500 N/mm^2.

Subsoil Conditions

Bearing capacity=500KN/m^2

2.4.3. Mechanical Systems for the Proposed Building

The mechanical systems covered under this section are the fire fighting system, plumbing and drainage system, and Air Conditioning and Mechanical Ventilation (ACMV).

2.4.3.1. Air Conditioning and Mechanical Ventilation

Internal Heat Gain Criteria

The ASHRAE standards were recommended for use to determine the heat loads. Data of 7.5 sq.m/ person had been used in several areas. However, further occupancy rates of all spaces shall be confirmed. The final heat loads will be carried out during the detailed design stage based on the occupancy rates and other design parameters as approved during the schematic stage. Air conditioning will be provided to switch rooms & server rooms, meeting rooms, and other offices.

Mechanical Ventilation Systems

General: Mechanical ventilation systems comprise mechanical ventilation fans, air distribution ductwork, and supply and exhaust grilles, air intake and exhaust louvers, etc. This will be provided to serve all toilets.

Toilets and General Exhaust: In general, WCs will be grouped in clusters and served by dedicated exhaust air systems. Toilet exhaust shall be capable of providing the required ventilation as per ASHRAE 62.1. Where hazardous gases air or chemicals are present in the rooms to be ventilated sufficient exhaust shall be provided to create negative pressure with respect to the adjacent space.

2.4.3.2. Plumbing and Drainage System

Sanitary, Waste, and Drainage System

The proposed drainage systems will be as follows;

i. Two (2) pipes system of soil and waste with a vent pipe to be adopted for public toilets.
ii. Kitchen waste pipe system will be provided. One (1) Floor Trap will be provided within the F&B spaces for use.

iii. Dedicated kitchen waste pipe line will be provided to serve the Kitchens and restaurant.
iv. Soil and waste drainage for the above-ground floor will be gravity discharged to ground level inspection chambers before being transferred to public sewer. Sewerage disposal by gravity method will be adopted as far as possible, and a sump and pump system will be applied for those areas where the levels of the sanitary fittings are too low to be disposed to the public sewer by gravity.

Proposed Construction Materials

i. Pipes (uPVC Pipes): Due to the resistance of uPVC pipes to acids and sulphates, this material will be used instead of concrete pipes for ND not exceeding 250 mm in the sewer network. uPVC pipes will also be used for diameters exceeding 200 mm for locations where jointed concrete pipes are unsuitable, such as embankments which are likely to settle, or where very steep gradients result in high velocity and possible pipe erosion, or where water logged areas have to be traversed and concrete pipes become unsuitable because of their porosity.

ii. Manholes: Precast concrete manhole rings, which are manufactured locally will be used for construction of manholes or in-situ construction of manholes. The minimum size of the manhole for efficient operation and safety will be 1050 mm. Precast manhole rings will be surrounded with a minimum thickness of 150 mm concrete to improve water tightness and stability. For access purposes galvanized mild steel cast iron step irons will be built into the manhole rings. The nominal vertical interval between all the step irons within a given manhole is 300 mm and should be staggered. Due to the high rate of vandalism in connection with cast iron manhole covers, heavy duty triangular mild steel manhole covers filled with concrete will be used.

Domestic Hot & Cold Water

Based on the expected population of the building, the estimated daily water consumption was noted to be $50.9M^3$as indicated in Annex XXI. Water supply will be by gravity from holding tank at roof level. Cold water will be stored in the pressed steel water tank at ground level, including both borehole and municipal water. Distribution will be via a transfer pump to the pressed steel roof tank located on the Eleventh Floor. There will be no hot water provision for toilets, office spaces. Showers will be provided with instant water heaters

Rain/Storm Water Drainage

All building roof drainage will be collected and piped to the storm water drainage system and collected in atank for onsite use for washing and land scaping. This will be so because the quality of the water may not be good. Storm water collected by roof drainage systems shall consist of roof drains connected to vertical drain pipes to discharge rain and surface water to the site storm water collection utility. Rainwater drainage will include drains for flowerbeds and plantation areas. The system will be designed in accordance with IPC Chapter 11 (Storm Drainage). Pipe work will be designed to achieve a minimum of 0.75m/s self-cleaning velocity. In view of flooding effects on the plot as a result of inadequate drainage system in the general south C area,

the drainage system has been designed as indicated in the civil engineer's design detail Annex I-B to manage surface water flows from outside, which affect the project site.

2.4.3.3. Fire Fighting System

Stand Pipe and Hose System

A wet standpipe system with a fireman's landing valve in each floor, pipe work, etc. in full compliance with NFPA 14 will be provided for the entire development. A (Class III) stand pipe system is proposed. It will be provided near all exits and along corridors covering at least a 30-meter travel distance to any remote area or room. Each hose outlet shall contain one no. of 65mm diameter landing valve, one no. of 40mm Hose rack, 4.5kg carbon dioxide type fire extinguisher, and 4.5kg dry powder type fire extinguishers. The minimum pressure available at each outlet shall be 6.9 bar (100 psi) as required by NFPA 14.

The installation height of the outlets shall comply with NFPA 14. Water for the wet risers shall be tapped from the main header in the mechanical plant room. An approved pressure regulating device (PRV) shall be provided to limit static and residual pressures at the riser inlet to 175 psi (12.1 bar). Fire brigade breeching inlets with check valves shall be located around the building. The location of the fire brigade breeching inlet shall be in such a way that it shall be within 30.5m of fire brigade vehicular access in accordance with NFPA 14. Siamese connections are to be provided for the firefighting system in the building. The Firefighting system shall be designed in such a way that the water supply from the fire brigade trucks will reach all portions of any served building.

Portable Fire Extinguishers

Portable fire extinguishers will be provided in accordance with NFPA 10; Standards for Portable Fire Extinguishers. Extinguishers will be provided at all hazard areas such as kitchens, electrical rooms, garbage rooms, and generators. The Extinguisher types to be provided are:

- Carbon Dioxide (provided in kitchens, electrical, communication rooms)
- Dry Chemical (provide in mechanical plant and garbage room,

In rooms protected by FM-200 type, ABC and CO2 fire extinguishers will be provided in accordance with NFPA requirements.

Stairwell Pressurization

Stairwell pressurization systems will be provided where indicated in the facility fire report. These systems will be designed in accordance with ASHRAE 52 and ASHRAE Principle of Smoke Management (Klot and Mike: 2002) with multiple injections. These systems will comprise fans, each rated at full duty discharging untreated outdoor air into the stairwell. Multiple injection systems will deploy a vertical builder's work shaft within the stairwell with one outlet at least every two levels. The fans will be variable speed and designed to overcome stairwell leakage so that pressure differential across closed doors does not exceed the maximum and minimum values stipulated in NFPA92A.

Sprinkler Systems

A fully automated sprinkler system shall be provided to all buildings according to NFPA 13 requirements. The minimum pressure available at each sprinkler shall be 1.4bar. Each sprinkler riser shall be connected with an alarm check valve & isolation valve. Each alarm check valve shall not serve a portion of the floor exceeding 4831sq.m. In any case, if the floor area exceeds 4831 sq. m additional alarm check valve with a riser shall be provided. The zoning of the sprinkler system shall comply with the requirements of NFPA 13. Non-return valves shall be installed in the breeching inlet piping to avoid the back flow of water from the system. Each sprinkler riser shall be connected with a breeching inlet. Breeching inlet piping shall be connected to the downstream of the alarm check valve.

The sprinkler system shall be zoned & each zone shall be provided with an isolation valve supervised electrically, flow switch (connected to the fire alarm system), test and drain valve, pressure gauge, etc. to comply with NFPA 13. The outlet of the drain valve shall be connected to the nearest floor drain. Sprinkler System shall be provided to all the enclosed portions of the building except the areas where other specialized systems are used. Automatic air release valves shall be installed at the elevated level of each riser with an isolation valve and end cap. All the isolation valves shall be provided with a supervisory switch which shall be electrically supervised in the Main fire alarm panel. There shall be an individual address for each isolation valve. All controls and alarms' requirements shall be connected to the fire alarm system.

Gaseous Fire Suppression System

FM200 Gaseous fire suppression is provided for the electrical equipment rooms to comply with the requirements of NFPA 2001. Here, the design considered as total flooding and extinguishing agent shall be discharged to all zones in case of fire in any zone. The design concentration for the gas will comply with the requirements of NFPA 2001 and will comply with the requirements of the authority having jurisdiction. The discharge duration of the gas will be within 10 seconds. The design concentration for FM200 will be 7.19 %. Each system will comprise of the following primary components:

- Gas storage bottles
- Distribution pipework
- Solenoid head
- Solenoid actuator
- Pneumatic actuator
- Local manual actuator
- Supervisory low-pressure switch for each cylinder
- Discharge pressure switch
- Abort switch
- Auto / Manual selector switch
- Manual release sign
- Entrance warning sign

- Gas extinguishing panel
- Smoke detectors
- Horn Strobe
- Flashers
- Alarm Bell
- Main/standby selector switch

2.4.4. The Electrical Design

Electrical Supply and Distribution System is essential as a vital means for the operation of the building during normal utility power, utility power failure, and emergency operation periods. System Supply will be 11kV step down to 415/240Volts. The proposed electrical works that shall be provided to the proposed building will include:

- Main Power Distribution.
- Standby Power Generating System.
- General Lighting will be provided for all Back House areas and Support Offices.
- Interior, Landscape and Façade Lighting by Specialist Lighting Consultant
- General Emergency Lighting and Exit Signs will be provided.
- Lightning Protection System.
- Earthing and Equip-potential Bonding System.
- Telecommunication and Data System.
- Fire Detection and Alarm System
- Public Address System
- Security and surveillance system

2.4.4.1. Total Load Demand

The total Demand Load for the entire development has been calculated to be around 0.6MW. There is a potential for an increase in load, which will be associated with the reception of more definitive load from Mechanical requirements in addition to the latest architectural plan and adoption of recommended minimum electrical density done by architects.

2.4.4.2. Electrical MV Intake, Sub-stations, and Generator Plant Rooms

Electricity will be provided by Kenya Power & Lighting Company Ltd at 11kV and will be distributed at 415/ 240 V. A dedicated intake MV room will be provided for Kenya Power & Lighting Company MV equipment and will serve as Utility Company point of isolation at MV side. The room will connect the Kenya Power & Lighting Company supply, and the whole Mixed Used Development electrical system. The intake room will be turn-over to Kenya Power & Lighting Company for their exclusive access and maintenance.

2.4.4.3. Substation

A dedicated substation room for the development has been provided. The Substation will house a total of one (1) nos. of 1MVA transformer and its associated Ring Main Units (RMU's). To

ensure power supply reliability, 100% generator backup with 9hrs fuel supply capacity has been provided for. There will be two nos. of 300kVA, prime rating, and diesel engine generator. The generators will be connected in parallel using Generator Paralleling Switchgear to allow alternate and sharing operations.

2.4.4.4. Medium Voltage Distribution System

Kenya Power & Lighting Company will provide 11kV electricity supply to the site from Existing Utility 11kV Substations. The proposed LV rooms will be located on the Ground Floor. The 11kV cables will run from the nearest utility infrastructure manhole just outside the plot boundary to the Utility Company MV room. The exact location of the 11kV supply point or nearest infrastructure manhole shall be consulted to Kenya Power and Lighting Company

2.4.4.5. LV Power Supply

Low Voltage distribution for major mechanical and services plants will be provided using a respective Sub-Main Distribution Board/s, Motor Control centre/s, Local Motor Control Panel/s, Distribution Board/s, and feeder/s emanating from respective Low Voltage Switchboard. All major plants will be sub-metered via an electronic digital meter connected to Building Management System for history, event recording, and monitoring. The Electrical Board supplying power will be located near the equipment or within the nearest electrical room. The entire building as a whole will be metered in bulk at the secondary of the dedicated transformer. Utility Company electricity consumption bulk meter is expected to be at the 11kV voltage. The bulk meter will be located in the main LV room. However separate meter will be provided for the Restaurant.

2.4.4.6. LV Main Switchboard

A dedicated set of LV switchboards (MDB) will be provided for the building. The LV switchboard will be located in the main LV rooms. The Low Voltage switchboard (MDB) will be Form 4, Type 6, free-standing, type-tested, fully certified with a minimum fault capacity of 50kA for 1 sec, and fully rated to operate at 50ºC. The Low Voltage Switch Board will comprise but not limited to: The main incoming ACB from utility power and the main incoming ACB from the emergency supply will be electrically and mechanically interlocked and will serve as the Automatic Transfer Switch (ATS) to avoid parallel supply coming from utility and emergency supply at the same time. Where spare capacity permits, a minimum of 20% spare switchgear space will be provided for all low voltage switch boards.

2.4.4.7. Power Factor Correction

Every installation shall have a power factor within the range of 0.9 lagging to unity. The installation of suitable correction equipment may improve a lagging power factor of less than 0.9. Where a capacitor is installed for power factor correction, it must be provided with a means for its automatic prompt discharge immediately after the supply is disconnected. Power factor correction will be provided at each LV Main Switchboard.

2.4.4.8. Automatic Voltage Regulator (AVR)

A-line Automatic Voltage Regulator (AVR) to compensate voltage variance and ensure safe operation of the electrical system has been provided. AVR shall be an industrial type with a rectifier/ filter circuit to ensure a clean power supply to the electrical system. The AVR will be provided adjacent to each Main LV switchboard to automatically mitigate and improved any voltage variation before entering the building electrical system

2.4.4.9. Final Circuit Distribution Board (DB)

Each Floor will have a number of final circuit distribution boards. All distribution boards will be at least three (3) sections. Each section will be provided with appropriate Earth Leakage Circuit Breaker protection in accordance with Local Authority requirements. It will also include the main isolation switch, with outgoing circuits protected by miniature circuit breakers. Distribution boards will be metal-clad type, complete with a lockable hinged front cover. Distribution boards within the front of house areas will be located within dedicated lockable enclosures or flush into the wall. Distribution boards in plant spaces, back of the house, and service areas will be surface mounted within plant room or dedicated electrical rooms.

2.4.4.10. Lighting

General lighting for public areas such as staircases, corridors, plant rooms, carparks, and staff circulation areas will be provided with LED luminaries for energy-saving purposes and supplied with solar PV. All luminaires in all potentially wet areas and exterior installation shall be IP55 minimum. Lighting for the garden, landscape, building facade, lift lobbies, restaurants, General Offices, etc., will take into consideration both functional and aesthetic aspects. Lighting System for function room, banquet, all-day dining, common restaurant corridor, Offices, and other Front of House Areas (FOH) will be designed in collaboration with the specialist and interior designer. Lighting control, in general, will be a Centralized Automatic Lighting Control System using workstation computers, control module, dimmer modules, gateways, user interface, motion and occupancy detectors, etc.

2.4.4.11. Lightning Protection System

The Lightning Protection System will utilize the steel reinforcement in concrete structures as down conductors. Exposed horizontal copper tapes will be provided at roof levels around all roof parapets, and earth electrodes at ground level will be designed. Lightning protection system shall be designed in accordance with the BS EN 62035.

2.4.4.12. Public Address (PA) System

Public Address Systems will be provided for the lift lobbies, corridors, and public areas.

The complete system consists of speakers, power amplifier, distribution line amplifier, microphone, tuner, compact disc and zone selection relay unit, which will be wired back to the main control room respective central control. The PA system will serve most areas including

public areas, corridors and lift lobbies. In the event of fire or emergency, an emergency switch in the FCC operator console will override the PA system. Emergency evacuation (EVC) announcements will be broadcasted from the FCC to all areas (either as a common announcement or according to the zoning and staging of any evacuation based on the management fire strategy for the complex).

2.4.4.13. Fire Detection and voice evacuation System

The buildings will be provided with a complete fire alarm system designed and installed in accordance with the NFPA-72 and local Authority Having Jurisdiction (NCCG). A separate distribution for voice evacuation speakers will be provided throughout the building. The whole building will have about 746 Fire alarm and detection system points, including the smoke detectors, the break glasses, the washers, and the sounders. These devices will be placed at strategic locations such as corridors, entrances, and exit areas where they can be easily accessed in the event of a fire. Each alternate floor from ground to tenth will have a Fire Alarm Repeater Panel (FARP), adding to a total of 5 FARPs in the whole building.

2.5. Project Resources and By-products

2.5.1. Project Resources

The following are the main resource input in the proposed project but not limited to**:**

i. **Land:** L*and has been acquired for this purpose* ***(7.4 Acres or 3 hactres) Title annex III***

ii. **Water:** *Water supply from NCWSC will be used for this purpose but will be supplemented by a borehole water source on site (Letter fron NCWSC-* ***Annex XVIII)***

iii. **Labour:** *Different forms of labour, both skilled and unskilled, will be utilized*. The contractor shall not allow any children to work on site and the workers shall be given a contract of not less than 6 month or as shall be dictated by project construction period.

iv. **Construction Materials:** Sand, Masonry stone, Cement, Ballast, Gravel, Water, Soil *(the materials shall be sourced from approved quarries by NEMA as per the attached requirements in annex XIII)*, Electrical wires, gadgets and equipment, Steel (reinforcement, casement, wiring, and standard fittings), Glass, PVS Material: (tiles, PVC pipes, conduits, and fittings), Concrete and paving, Paints and vanishes, Plant materials – grass, trees, seedlings, and Cypress Timber among others and or as maybe advised by the project Architect, Engineers, and Quantity Surveyor)

v. **Electrical Works:** Electrical work during construction of the premises will include installation of electrical gadgets and appliances including electrical cables, lighting apparatus, bulb, sockets, etc. In addition, there will be other activities involving the use of electricity, such as welding and metal cutting, to attain the desired results. The proponent will employ the services of a qualified electrical engineer for the same.

vi. ***Plumbing:*** Installation of pipe-work for water supply will use PvC pipes and distribution will be carried out within the project and associated facilities. In addition, pipe work will be done to connect sewage from generation points to the sewer system (SBR Treatment tanks) and to drain storm water from the rooftop into the peripheral storm water drainage

system. Plumbing activities will include metal and plastic cutting, the use of adhesive, metal grinding, and wall drilling, among others. A registered mechanical engineer will do this.

2.5.2. Project By-products

The volume of all excavated material which is projected to be created by the construction is eatimated to be **16,767m^3.** However most of the waste will be reused for backfilling while the expected volume for disposal - surplus excavated material is **7,625m^3**. Deposition for surplus excavated material (7,625m^3) will be contracted to approved NEMA commercial waste handlers to deposit the materials on behalf of the contractor and clients, in approved city and NEMA grounds. This will is captured in the BoQs.

The outdoor benches will be constructed from environmentally friendly recycled materials that were left over from the construction process. No wood will be used for this purpose.

The Kenya Civil Aviation Authority (KCAA), which is responsible for legally planning, developing, managing, regulating, and operating a safe and efficient civil aviation system in Kenya, has taken into account all uvuvi house technical aspects, including the impact of glass shine on airplanes and bird collisions, and has given its approval. The expected shine from the building will not have any adverse impact on planes passing by. Find ***Annex VI*** capturing this.

2.6. Project Alternatives

2.6.1. No Action Option

The **"No project"** alternative represents the potential scenario if the proposed project works are not implemented in the project area. Under this alternative, no construction of the Uvuvi house and improvement of the drainage system will be done in order to influence the local physical environment, biological, socio-economic, land use patterns, and no investment in fisheries headquarter will be made. This option is suitable from an environmental and social management perspective with no negative impacts but not good for social-economic purposes within the project area. The opportunity cost incurred will imply that the challenges affecting fisheries-related institutions of being accommodated in different locations within Nairobi city shall continue. The impacts on service delivery with extra movement cost to the client and the organizations. The proposed project is therefore anticipated to address these challenges by improving the existing situation by centralizing the administration of key institutions in the blue economy, minimize operating costs for the clients and the organizations, reduce time wastage shuttling between offices, maximize employee satisfaction and improve work productivity as well as create harmony among institutions to enhance synergy and efficiency if proposed construction of Uvuvi house project implemented.

2.6.2. Project Development Option

The construction of the proposed Uvuvi House project is anticipated to consolidate all institutions related to fisheries, aquaculture, and blue economy under one roof and providing the client with a one-stop service center for fisheries and the blue economy-related services. This shall: enhance synergy and efficiency among employees, improve work productivity, maximize employee satisfaction, enhance the general economic development of the nation (GDP), save time for the client spend moving from one office location to the other**,** minimize operating costs for the clients and the organizations by sharing same resources e.g., operation costs**,** centralizing the administration of key institutions in the blue economy, the market for local construction materials, business opportunities at construction and operation site particularly for eateries, enhance the aesthetic value of the project site, employment opportunities and contribute to improved management of priority fisheries and mariculture.

2.6.3. Alternative Site Selection Option

Relocation to a different site is another option available for exploitation, but currently, the proponent does not have an alternative site fit for the kind of development he intends to realize on this site. Looking for suitable land to accommodate the nature of the project and completing official transactions on it may take long, yet there will be no guarantee that the land will be available. Considering the above concerns and assessment of the current proposed site, relocation of the project is not a viable option. Besides, it is not easy to find a similarly suitable site to accommodate the proposed development while enjoying economies of scale. This is because the site is already developed and has connection to most social amenities, which could not be a guarantee if an alternative plot is sought.

2.6.4. Alternative Technologies

The application of the best technology is important in reducing the impacts of the project to the environment. Therefore, the project design team took cognizance of appropriate technology existing on the market in the proposed project facilities and activities. However, it was considered unsuitable for providing the comparison in this report and the described specifications provided in other sections of this chapter.

2.7. Project Budget

The estimated cost of the proposed development is about KShs. 999,647,279[9]. This cost includes construction materials, labour, environmental management, and social monitoring costs, and connection to social amenities. The breakdown of the project cost is as shown in Table 2-2.

Table 2-2: Summary of Proposed Project Cost

ITEM	DESCRIPTION	AMOUNT

[9] *The estimate cost is according to the figures provided in the bill of quantities*

NO.		Kshs.	USD
1.	Particular Preliminaries	25,080,000	2,50800
2.	General Preliminaries	20,700,000	207,000
3.	Builder's Works	544,036,263	5,440,362.63
4.	Service Building	4,558,731	45,587.31
5.	Landscaping	8,221,300	82,213
6.	Signage	2,046,800	20,460
7.	Civil Works & Parking	8,790,000	87900
8.	Services	299,413,133	2,994,131.33
9.	Day-Works	531,250	5,312.5
10.	Environmental Management and Monitoring Costs	20,000,000	200,000
	Sub Total	933,377,478	9,333,774.78
11.	Fluctuations add 2% of Sub-Total 1	18,667,549	186,675.49
12.	Contingency add 5% of Sub-Total 2	47,602,251	476,022.51
	BILLS TOTAL	**999,647,279**	**9,996,472.79**

3. POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

3.1. Chapter Overview

The chapter highlights significant policy, legal frame work, international best practice and project implementation and operation institutional framework.

3.2. Project Policy Framework

The proposed Uvuvi house office block's construction and operation activities shall require input spanning several national and county government institutions. The project activities at different phases shall trigger management of various resources, including; environmental management, public resources management and human resources management. The review of existing policy, legal and institutional framework requirements was therefore considered critical. The main policies and institutional interventions triggered at different phases of the proposed project are highlighted in the subsections below.

The major laws and regulations include the constitution of Kenya 2010, the Environment Management and Coordination Act (Cap 387), Environmental Impact Assessment and Audit Regulations (2003), The Public Health Act Cap.242, The Physical and Land Use Planning Act 2019, The Occupational Safety and Health Act 2007, The County Governments Act (2012), The Building Code (Adoptive by-laws) 1968, The National Environment Policy Session paper No. 10 of 2014, and the Environment and Land Court Act, among others.

3.2.1. Policy Framework

Table 3-1 highlights the policies that shall be triggered during the proposed project's implementation and operation. There will be a need to ensure the proposed project activities are in tandem with the policies' requirements.

Table 3-1: Policy Framework

NO.	POLICY INSTRUMENT	KEY PROVISIONS	RELEVANCE OF POLICY TO THE PROJECT
1.			
2.	Kenya Vision 2030	The vision is a government development strategy to steer Kenya to a middle-income country by the year 2030. It is based on the three pillars of political, social, and economic advancement, and it aims to transform the economy and achieve sustainable growth. The vision recognizes the	The proposed Uvuvi house office building project enhances the objectives of the policy paper of reforming the fisheries, aquaculture, and blue economy sector to play its key role in the country's socio-economic development. The sub-project shall transform SDFA&BE by

		significance of public sector reform as a key enabler. The sector was to be transformed by building and implementing service delivery systems that ensure efficiency, quality, speed, convenience, and dignity in service delivery as well as being globally competitive	building and implementing service delivery systems that ensure efficiency, quality, speed, convenience, and dignity in service delivery with a global competitiveness
3.	Draft Construction Industry Policy 2018	The draft policy recognizes the significance of the role of the construction industry in socio-economic development and the contribution of the sector to the national GDP. The policy is being developed to ensure a well-coordinated and developed construction industry to address the needs of the industry and contribute to sustainable socio-economic development. As part of the concerted efforts to improve the construction sector, the policy seeks to; ensure improved quality management in the construction industry, promote environmental integrity and conserve heritage in the industry and to protect workers and the general public from any risk associated with construction and boost risk and disaster management strategies in the industry.	The activities of the proposed Uvuvi house project at different phases shall be in line with the requirements of the draft policy to enhance impacts to the national socio-economic development, GDP, upholding environmental integrity and sustainability, the safety of workers, and the safety of the general public.
4.	The National Environment Policy Sessional paper No. 10 of 2014	The policy provides comprehensive strategies for government action regarding the quality of the environment and development.	The project has complied with the policy be integrating of environmental sustainability principles during implementation, operation, and decommission stages of the proposed Uvuvi House office building project.

5.	Nairobi County Integrated Development Plan 2018-2022	The NCIDP recognizes the significance of having orderly urban planning and land use. The existing urban structure is inefficient, leading to traffic congestion and the concentration of economic activities at the urban core. Therefore, the county commits to promoting spatial order for sustainable development by guiding development and inculcating environmental aspects into urban development.	The proposed construction of the Uvuvi house shall contribute to decongesting the urban core by relocating some of the offices operating within the central business district. The project has also incorporated sustainable urban development principles with the project cycle. The design of the project was approved by the county government after it was found to comply with the principles of the NCIDP
6.	National Gender and Development Policy (2000)	The overall objective of the Gender and Development Policy is to facilitate the mainstreaming of the needs and concerns of men and women in all areas in the development process in the country. The construction sector plays a key role in socio-economic development.	Deliberate and affirmative action to encourage all genders to contribute to the proposposed sub-project activities has been inculcated in the ESMP. The construction of the Uvuvi house provides an opportunity for the engendering of the construction sector as a means towards poverty reduction and inclusive socio-economic development.

3.2.2. Legal Framework

Table 3-2 highlights the main legislations that will govern the proposed project's activities during implementation and operation. The legislations also provide an institutional framework for the proposed project activities at the implementation and operation phase. The legal framework provides a general framework for the coordination of project activities at all phases of the project.

Table 3-2: Legal Framework applicable to Uvuvi House Construction and Operation

NO.	LEGAL INSTRUMENT	PROVISIONS	APPLICATION OF REGULATIONS TO THE PROJECT
1.	Constitution of Kenya, 2010	The constitution outlines principles of environmental and social	The construction, operation and decommissioning of

		sustainability. The constitution in article 42 emphasizes the need for a clean and healthy environment by managing substances that may pollute the environment or cause harm to human health. The right to a clean environment is further enforced by article 70. The constitution in article 54(c) requires ensuring people with disabilities have reasonable access to all places, public transport, and information.	Uvuvi house shall uphold environmental and social considerations through the implementation of the ESMP and EMoP. The focus shall be on ensuring a clean and healthy environment for all as well as taking into consideration the requirements for people with special needs. The requirements for people with special needs has been considered in the design of the building
2.	The Fisheries Management and Development Act No. 35 of 2016	The Act establishes the Kenya Fisheries Service, whose key role is to ensure Kenya's fisheries resources' conservation, management, and development. It also establishes the Kenya Fish Marketing Authority, The Fish Levy Trust Fund, and the Kenya Fisheries Advisory Board. The Service must have its headquarters in Nairobi, which shall be housed on Uvuvi house together with other institutions key to driving the national blue economy agenda.	The construction of Uvuvi house shall ensure the proposed headquater of the service is build in Nairobi
	Building and Construction		
3.	The National Construction Authority Act No. 41 of 2011	The Act establishes the National Construction Authority (NCA) which is mandated among other functions to; Oversee the construction industry and coordinate its development; Promote and stimulate the development; improvement and expansion of the construction industry; Prescribe the qualification or other attributes required for registration of contractors;	The Act shall be applied in the management of the construction site of the proposed sub-project by ensure qualified site personell, safety and construction quality standards are adhered.

		promote and ensure quality assurance in the construction industry; encourage the standardization and improvement of construction techniques and materials; Accredit and certify skilled construction workers and construction sites supervisors and development and publish a code of conduct for the construction industry.	
4.	The National Construction Authority regulation 2014	The Regulations requires that any contractor or construction workers working on any construction site in Kenya be registered and accredited by the National Construction Authority. Such persons or firms shall annually renew the certificate of registration according to the provisions of the Act. Other than registration of construction workers and contractors, the Act requires that all construction works, contracts or projects either in the public or private sector be registered with the authority. The owner of such construction sites or contracts shall designate a contact person to liaise with the Authority. And that all construction workers and supervisors be accredited and certified by the Authority.	The regulations requirements shall guide on the qualification of contractors and construction workers that shall be allowed to work on site for the proposed Uvuvi house office block. NCA shall issue approvals regarding site activities.
5.	The National Construction Authority Act (No. 41 of 2011) The Draft National Building Code 2020	The main objective of the National Building Code is to promote order and safety in construction works and the health and safety of persons in or about construction works. The code provides for the design, construction, operation, inspection, and maintenance of buildings. Sets standards for building materials, products, elements, systems, and services.	The building codes shall guide the contractor, project supervising engineer, and the SDFA &BE on the expectations of NCA regarding construction, operation, and decommissioning activities of the project.

		Provides standards for infrastructure services sets standards for the operations and works at construction sites provides for disaster management at construction sites and Provides for the safety and security of building users and occupants.	
	Environment and Natural Resources Management		
6.	Environmental Management and Coordination Act, EMCA CAP 387	It sets the legal and institutional framework for the management of environmental issues in the country.	The project triggers the Act to assist in managing and coordinating potential environmental issues likely to emanate from proposed project activities during implementation, operation, and decommissioning. The Act shall guide the relationship between SDFA&BE, Contractor and NEMA on matters regarding the environment and public concern. This ESIA report is required by the Act and must be approved before works can commence
7.	The Environment (Impact Assessment and Audit) Regulations, 2003	The Environmental Regulations (2003) are ingrained under section 147 of the EMCA (Cap 387). The regulations provide the framework for carrying out EIAs and EAs in Kenya. This EIA project report has been conducted in conformity with these regulations and EMCA, Cap 387	The Act guided the development of the ESIA report and shall also come in hand to ensure preparation of annual environmental audit reporting during operation as well as decommissioning of the project
8.	EMCA Waste Management Regulations 2006	Provide for management of different forms of waste streams in the country, given that the project activities during implementation, operation, and decommissioning will result in waste	An increase in waste generation is anticipated during project implementation, and the regulations will come in hand

		generation.	to guide its proper management and disposal. Relevant regulation requirements has been captured in the ESMP
9.	EMCA Air quality regulations of 2014	The regulation prohibits emissions of air pollutants exceeding permissible levels from controlled areas, stationery sources, mobile sources, occupational exposure, material handling, demolition areas, waste incineration, open burning of hazardous waste, or from cross-border. The regulation also requires that all emissions be licensed.	The proposed sub-project is anticipated to compromise air quality within the proposed project area during construction, operation and decomissiong and therefore the regualations shall come in hand to guide air quality management standards. Ambient air quality report has been prepared and the project doesn't expect to exceed the required threshold.
10.	EMCA Noise and Excessive Vibration Pollution Control Regulations, 2009	The regulations prohibit loud, unreasonable, unnecessary, or unusual noise which annoys, disturbs, injures, or endangers the comfort, repose, health, or safety of others and the environment. Occupational noise and vibration need to be controlled during the project implementation process. The main sources of noise shall be due to vehicle movement that will be involved in the construction of the project, particularly during the transportation of materials to the site. The excavation of the foundation shall be the major source of noise and vibrations due to the rocks that were reported on-site following the geotechnical survey findings.	The proposed sub-project is anticipated to have an impact on ambient noise levels within the proposed project area during construction, operation and decomissiong and therefore the regualations shall come in hand to guide noise level management standards. Ambient noise levels report has been prepared and the project. Some of the requirements of the regulations have been incorporated in the project ESMP
11.	EMCA Water Quality Regulations,	Water quality regulations lay down the standards of domestic water and waste water. The regulations are meant for	The regulations shall come in hand to ensure that water supplied to the building meet

	2006	pollution control and prevention and provide for the protection of water sources.	domestic water supply standards. The regulations shall also ensure that waste water propduced from the building meet effluent discharge standards. The quality of the water to be supplied by NCWSC has been assured as indicated in *Annex XVIII*
12.	The Environment and Land Court Act, 2011	This is an Act of Parliament formulated to give effect to Article 162(2) (b) of the Constitution; to establish a superior court to hear and determine disputes relating to the environment and the use and occupation of, and title to, land, and to make provision for its jurisdiction functions and powers, and for connected purposes. In this regard, those affected by various development ventures that are considered harmful to the environment have structures in place to seek justice, and in so doing, the environment will be safeguarded at all times.	In the event of any environmental sustainability dispute between NEMA and project contractor or SDFA&BE, the Act will be triggered in resolving the issues for any agreeved party.
	Devolved Governance		
13.	County Government, Act 2012	The County Government Act provides local governance principles, guides the planning and development process, and community participation in the development process.	The Act will come in handy to reduce conflicts between project and county government physical planning priorities. The Act should be read together with the physical and land use planning Act, 2019 to guide on institutional management framework, land use planning being a devolved function. The statutory approvals for

			the proposed office building has been acquired from Nairobi City County
14.	Nairobi City County, City bylaws	The city-county has put in place city bylaws to govern the residents within the area of jurisdiction.	The proposed Uvuvi house construction project shall trigger some of the bylaws including but not limited to: rules on general nuisance on noise, solid waste management, some rules on fire brigade at operation phase of the building, licensing of premises and trade within Uvuvi house, rules on restaurants, eating house and snack bars that shall be operating at Uvuvi house and rules on conservancy regarding waste water management obligations at Uvuvi house. relevant requirements under the bylaws have been incorporated in the ESMP (Annex for Nairobi by laws)
15.	The Physical and Land Use Planning Act, 2019	The Act provides for planning and controlling physical development in the country in general. The Act read together with the county government Act 2012 will assist in synchronizing the national, local, and project physical planning, controlling for any possible conflicts.	The Act shall also assist SDFA&BE in planning for connection to social amenities such as sewerage services, power, or water services, based on the existing physical planning of the proposed project area. The sub-projects should also meet planning requirements of the area. The project has been approved by the Nairobi City County after meeting the requirements of the Act.

	Labour Relations		
16.	Occupational Safety and Health Act, 2007	The Acts aim to ensure the safety, health, and welfare of persons at work and non-workers as well as cushion workers against loss of income or livelihood due to occupational accidents or diseases.	The Act shall be applied for the safety of workers and the general public to be ensured during project implementation, operation, and decommissioning phases. Relevant requirements of the Act has been incorporated in the ESMP
17.	Work Injury Benefits Act, (2007)	This provides compensation to employees for work-related injuries and diseases contracted in the course of employment.	Requirements of the Act shall be applied to ensure that workers are sufficiently covered and compensated when they get injured in the course of the construction.
18.	Labour Relations Act 2012	The Act promotes sound labour relations through the protection and promotion of freedom of association, the encouragement of effective collective bargaining, and the promotion of orderly and expeditious dispute settlement, conducive to social justice and economic development and connected purposes. The Act in Section II Part 6 provides for employees' freedom to associate; section 7 provides for the protection of rights of employees; Part 9 provides for adjudication of disputes, and Part 10 provides for the employees' protection to hold strikes lockouts.	The Act shall apply to ensure that workers welfare are entrenched into the activities of the proposed sub-projects particularly at construction and decommissioning phase. The workers to be allowed to form associations to air out their grievances. Some of the requirements have been captured in the ESMP.
	Public Health		
19.	Tobacco Control Act No 4 of 2007	Promote and protect the rights of non-smokers to live in a smoke-free environment.	Contractor to provide and label the designated smoking area. Same shall be done during operation by SDFA&BE
20.	Public Health	The Act addresses matters of	The Act shall be applied to

	Act, 1986 (Cap 242 Revised edition 2012)	sanitation, hygiene, pollution, and general environmental health and safety, which are directly related to cases of pollution and contamination of water sources, be it ground or surface. The management of waste water that shall be generated should be managed in a way that shall not cause any public nuisance.	ensure that all sanitation systems of Uvuvi house and the reasustarants operation activities meet the requirements of the Act. In addition workers particularly those working in the proposed restaurants shall be required to have public health permit. Any food vendors to the workers will also be expeted to meet the requirmenets of the act.
	Cross Cutting Issues		
21.	The National Gender and Equality Commission Act 2011	The Act seeks to promote gender equality and prohibit any form of discrimination against any; women, men, persons with disabilities, the youth, children, the elderly, minorities, and marginalized communities.	That Act shall be triggered particularly during the project construction phase to ensure equal opportunities for all gender. Some of the requirements of the Act has been captured in the ESMP.
22.	Persons with disability Act No. 14 of 2003	The Act requires a conducive environment to operate for persons with disability to enable such persons to have ease of access and mobility in all public spaces. The Act in section 21 stipulates that persons with disabilities are entitled to a barrier-free and disability-friendly environment to enable such persons to have access to buildings, roads, and other social amenities, and assistive devices and other equipment to promote their mobility.	The design of the Uvuvi house office building is compliant to the requirements of the law by ensuring ease of accessibility and mobility within the building for such persons with disabilities.
23.	Public Participation Act 2016	The Act provides a general framework for effective public consultations. It gives effect to the constitutional principles of democracy and the participation of the people. The Act,	The Activities of the proposed sub-project shall require participation by different stakeholders in order to ensure compliance

		therefore, gives effect to the principles of public participation as provided for in the constitution. Participation is anticipated to promote transparency and accountability in decision making, promote community ownership of public decisions and promote public participation and collaboration in project governance processes.	with the principles of the Act. Stakeholder engagement shall be a continous process through out the project cycle in addition to the consultations that has been done so far.
24.	Sexual Offences Act, 2006	This Act protects people and employees from any unwanted sexual attention or advances by staff members. This act ensures the safety of women, children, and men from any sexual offences, including rape, defilement, and indecent acts. This law will govern the code of conduct of the Contractor's staff and provide repercussions of any wrongdoing. The sexual offense act, 2006 supports the Kenya Employment Act of 2007 that a worker should not be harassed sexually to receive preferential treatment at the workplace or detrimental treatment on present or future employment	The Act will come in hand to ensure that all matters related to GBV at workplace are managed appropriately. GRM has been incorporated under this report.
25.	HIV and AIDS Prevention and Control Act, 2006	This is an Act of Parliament to provide measures for the prevention, management, and control of HIV and AIDS, to provide for the protection and promotion of public health, and for the appropriate treatment, counseling, support, and care of persons infected or at risk of HIV and AIDS infection, and for connected purposes.	Requirements of the Act will ensure that the contractor makes provision for VCT services for employees and locals where appropriate and promotes public awareness. This will go a long way in ensuring stigmatization of HIV and AIDS is reduced as well as managed during the construction period. The project ESMP budget has provided for sensitization and awareness.
26.	The Children Act, 2001	This Act protects the welfare of children within the Country. The Act identifies Children as a person below	The Act shall be applied to regulate any kind of engagement for underage to

		the age of 18 years old and protects them from exploitation. Of particular importance to this project is section 10, which protects the child from: • Economic exploitation. Any work that interferes with his/ her education or is harmful to the child's health or physical, mental, spiritual, moral, or social development.	the project activities on site.
27.	The Nairobi City County Sexual and Gender-Based Violence Management and Control Bill, 2019	It is an Act of the Nairobi City County Assembly providing for the promotion of public awareness about the causes, impacts consequences, means of prevention, and resposes to sexual and Gender sexual based violence. The Act also provided for protection to victims of sexual and Gender sexual based violence in line with existing laws and regualations. The County is to establish coordination with all stakeholders through a coordination unit.	The proposed project shall be implemented within Nairobi County area of Jurisdiction and their shall be need to consider the Act in the event of GBV cases at Uvuvi house site. The Act will be handy in clarifying the role of the county government in providing basic information and instruction on sexual and gender based violence at the construction site as provided for in article 13 of the Act.

3.2.3. World Bank Safeguard Policies' Triggered and International Best Practices

The proposed sub-project falls under the World Bank's support to the government through investment lending towards transforming and strengthening sectors related to the blue economy as part of KEMFSED project. The proposed construction of Uvuvi house activities will thus trigger the Bank's Safeguard Policies requirements *(OP 4.01 Environment Assessment) and occupational health and safety requirements* which requires undertaking environmental and social due diligence. However the KEMFSED project in general triggered several Bank policy requirements as depicted in table Table 3-3

Table 3-3 : World Bank Operational Policy Trigered under KEMFSED and Uvuvi House

CODE	NAME OF THE POLICY	OBJECTIVES	APPLICATION TO PROJECT
OP 4.01	Environmental Assement	To ensure that environmental and social considerations are integrated into KEMFSED and Uvuvi house construction	The policy is triggered under KEMFSED and Uvivi house sub-project. Policy informed ESIA preparation for Uvuvi

		project's decision making process. The iam is to enhance positive impacts and mitigate negative impacts of the project	house to guide on enhancing positive impacts of the project and mitigating negative ones.
OP 4.11	Physical Cultural Resources	To preserve and conserve artifacts or sites of cultural significance for human well being	Although the policy is triggered under KEMFSED project, for Uvuvi house sub-project is not. Uvuvi house site location is not of any known cultural significance. However chance find procedure shall be triggered during excavation of the foundation in the event that any cultural artifacts are found on site.
	World Bank Group Environment, Health and safety guidelines	The proposed sub-project under KEMFSED triggers: environment, health and safety issues, and considerations of the guidelines shall come in hand to guide on the best course of action, For the different project activities, especially during project implementation, operation decommissioning, regarding air quality issues, waste water management, construction waste management and noise from the construction activities on site	Relevant requirements of the guidelines have been incorporated into the ESMP
	Good practice note Environmental and Social Framework for IPF operationsGender	To share experience on approach to gender equality and inclusion in project activities	The guidance note will come inhand in sharing learning experiences in handling gender equity, gender based violence, sexual exploitation and abuse as well as sexual harassment on Uvuvi house construction project.

3.2.4. International Conventions and Treaties

Kenya is a signatory to several international treaties and convestions aimed at enhancing social economic development, environmental sustainability and the fundamental human rights. The proposed project has incorporated some of the principles from international conventions into mitigation measure under the ESMP. Some of the select few convestions and treaties considered are as indicated in Table 3-4.

Table 3-4: International Conventions and Treaties Ratified by Kenya Trigered by the Project

NO	TREATY/CONVENTION	OBJECTIVE	APPLICABILITY TO THE PROJECT
1.	Convention on the right of the child	The objective of the convention is to protect the rights of a child against abuse and exploitation	The project has considered the convention by not allowing any underge persons to be employed to work on Uvuvi house site.
2.	convention on the rights of people with disabilities	The intention of the convention is to protect the rights and diginity of persons with disability	Uvuvi house design has considered the rights of people with disability by providing for easy of access and mobility to Uvuvi house premise
3.	Constitution of the international labour organization and the eight fundamental convetions	To advance social and economic justice through setting international labour standards.	The project has applied the requirements of ILO in the management of the workers working on site. Project ESMP has proposed mitigation measures to protect the rights and safety of all workers.
4.	Kenya is asignatory to Kyto protocol and paris agreement	To mitigate against climate change impacts through climate change adaptation measues.	climate change adaptation measures has been considered in the design of the project to mitigate against the impacts.

3.3. Project Institutional Framework Arrangement

3.3.1. Regulatory Supervision

Table 3-5 highlights the key regulatory institutions/agencies that shall be involved in overseeing the project activities during the implementation and operation phases to ensure that they meet regulatory standards. Therefore, coordination and consultations shall be required at different levels depending on the activity at hand.

Table 3-5: Regulatory Supervision of Uvuvi House Construction and Operation Phases.

NO.	INSTITUTION	RESPONSIBILITY
1.	*National Construction Authority (NCA)*	The Authority shall monitor compliance to design, construction, operation, and maintenance standards of the proposed building and the associated facilities. It is within the mandate of the Authority to ensure that all construction workers and the contractor who shall be engaged are accredited and licensed to carry out the construction activities. The Authority shall also monitor the safety of workers and the general public during project implementation and decommissioning.
2.	*Nairobi City County Government*	The County Government Act 2012 sets the development agenda in the Counties by indicating the functions of the devolved system. Land use planning, waste management, fire and disaster management services, Water and sanitation services provision are devolved functions, and the development proponent (SDFA&BE) will be required to work with the county governments to realize the implementation of the proposed project activities. Therefore the County Government will support the project proponent to ensure smooth implementation of the project through issueing of various permits and associated social services. The County government shall issue the occupational safety certificate before operation and use of the building. The County government shall also play a role in improving the drainage system of the project area in consultation with SDFA&BE
3.	*Nairobi County Environment Committee*	The committee shall ensure that the proposed project activities adhere to prescribed environmental standards to prevent any harmful impacts to the environment. The project proponent (SDFA&BE) and the project supervising engineer shall ensure that any incidences that warrant the committee's knowledge are furnished with such information as shall be required.
4.	*State Department of Fisheries Aquaculture & Blue Economy*	Through KEMFSED, a GoK and World Bank funded project, SDFA&BE shall finance and provide technical support in monitoring compliance to design, construction, operation, and maintenance standards of Uvuvi house

		office building and the associated facilities under the proposed project. SDFA&BE shall be in charge of the daily operation and maintenance of the proposed office building at the operation phase. The Safeguard team under KEMFSED shall ensure the project ESMP is adhred to at implementation phase of the project
5.	*Nairobi Water and Sanitation Company (NWSCO).*	The water service provider shall ensure the provision of water and sewerage services to the proposed Uvuvi house office building (***Annex XVIII***). Given the amount of water required and the amount of waste water likely to be generated, the water services utility company working with the county government shall resolve any emerging conflicts among area residents regarding access to the resources. NCWSC shall also ensure that the disposal of the wastewater from the proposed project meet the statutory requirements to protect against any form of environmental pollution from the discharge of effluent.
6.	*National Environmental Management Authority*	The authority through the county office shall be in charge of overall management and coordination of all matters relating to the environment in the proposed development area through the County Director of Environment. NEMA shall be conducting the exercise through County Environment Committee. Issue EIA license and enforce the license conditions.
7.	*National Environment Tribunal*	The tribunal is a statutory body that resolves conflicts between NEMA and any of their clients regarding the environment. Any aggrieved party whether the Authority or a party client to the Authority in writing can launch an appeal against any decision made by the Authority (NEMA), or if the authority is aggrieved by failure of a party to execute an order or a decision. The Tribunal will come in hand if Uvuvi house project implementation and operation parties are aggrieved by NEMA's decision or license conditions.
8.	*Environment and Land Court*	Suppose any aggrieved party between Uvuvi house project implementation or operation parties and NEMA are not happy with any decision by the tribunal in the event of a dispute. In that case, the matter shall be referred to the

		environment and land court for a ruling.
9.	*Directorate of Occupational Health and Safety Services (DOSHS)*	The directorate shall ensure compliance with the OSH Act 2007 and promote workers' safety and health, particularly during the operation of the proposed building.
10.	*County Commission*	The County Commissioner's office shall come in hand to resolve any vioent conflicts on site between the contractor and the residents or the public in the event of such arising during project implementation and at operation with SDFA&BE. The intervention shal be to ensure order is restored on site.
11.	*Kenya Power and Lighting Company (KPLC)*	The company shall supply electrify to the proposed building and ensure that all electrical connections comply with safety standards.

3.3.2. Project Institutional Framework

Table 3-6 highlights the key project institutional framework that shall be involved in implementation and supervision of safeguards triggered by the project activities during the implementation and operation phases to ensure that they meet regulatory standards and World Bank requirements. Therefore coordination and consultations shall be required at different levels depending on the activity at hand. Figure 3-1 shows the project supervision organogram.

Table 3-6: Project Institutional Framework

NO.	INSTITUTION/ PERSONS	RESPONSIBILITY
1.	SDFA&BE	• The state department shall hire the project contractor, oversee the implementation and supervision of project related activities during operationand decommissioning phases of the project.
2.	National Project Coordinator KEMFSED	• Provide the link horizontally between Uvuvi house construction implementation team and vertically between the project implementing team, the Bank and the national policy makers (NPTAC and NPSC).
3.	Project Supervisng Engineer	• PE shall link the contruction team and KEMFSED National project coordinator (NPC)
4.	NPCU-Safaguards Specialists	The safeguards specialists shall be part of the project implementation supervison team and shall; • Ensure construction activities are carried out in line with national laws, World Bank safeguards operational policies and

		safeguards instruments prepared under the project (ESIA). • Prepare training materials and carry out technical trainings on environmental and social safeguards requirements to the contractor/team. • Review Contractor ESMP and ensure all safeguards issues are accurately addressed as per project design and project ESIA provisions, and provide expert guidance/advice to the project implementing committee site meeting. • Ensure relevant environmental safeguards requirements are included in construction contract. • Conduct independent/impromptu supervision and/or inspections of construction site to verify the compliance levels with the relevant safeguards instruments and Environmental, social, Health and Safety (ESHS). • Collect data on project environmental impact, compliance, Grievance Redress Mechanism functionality and utilization, and keep records of environmental supervision of the project activities on site. • Prepare regular safeguards monitoring reports and input to project progress reports.
5.	Project Supervising Consultant	The supervising consultant in general shall; • Link the project implementing contractor and the client • Be responsible for day to day suprvsions of safeguards on behalf of SDFA&BE. • To ensure that the contractor has all the statutory permits and licenses required to operate the construction activities on site. • Suppervise works to ensure that the works are implemented as per the safeguards requirements as stated in ESIA report and other safeguard tools as shall be brought to the attention of the supervising consultant • Regular preparation of safeguards project progress documentations • Convene in liason with the client (SDFA&BE) regular safeguards site meeting and inspections, prepare minutes and inspection reports. • Supervise safeguards contractural matter on behalf of the SDFA&BE • Supervise the C-ESMP that shall include environment, social, health and safety(ESHS), GBV, child protection and SEA aspects and ensure compliance with applicable national laws and regulations as well as the world Bank operational procedures and guidelines, with respect to environmental and social impacts. • Ensure that all workers sign a code of conduct. • Support the development and implementation of social impacts management tools that will include stakeholder engagement plan,

		child protection strategy and grievance redress mechanism • Supervise, monitor and report on the implementation of of the enhanced measures on environment, social, health and safety.
6.	Consultant's ESHS expert	The expert on behalf of Uvuvi house supervising consultant shall; • Shall link the project regulatory agencies to the client representative (project supervising consultant) • The expert shall advise the contractor team on safeguards issues as well as reporting to the supervising consultant • Review and approve the contractor's Environmental and Social Management Plan (C-ESMP) including all updated and revisions (not less than once every 6 monthly). • Review and approve ESHS provisions of method statements plans, proposals, schedules, and all relevant contractor's safeguards documents. • Review and advice the relevant persons (of the engineer and contractor) on the ESHS risks and impacts of any design change proposals and the implications for compliance with ESIA, ESMP, consent/permits and other relevant project requirements. • Undertake audits, supervisions and/or inspections of any sites where the (sub)/contractor is undertaking activities related to the works, to verify (sub)/contractor's compliance with ESHS requirements, with and without contractor and/or client relevant representatives, as necessary but not less than once per month. • Undertake audits and inspections of (sub)/contractor's accident logs, community liaison records, monitoring findings and other ESHS related documentation, as necessary, to confirm the contractor's compliance with ESHS requirements. • Agree remedial action/s and their timeframe for implementation in the event of a noncompliance with the (sub)/contractor's ESHS obligations. • Attend meetings including site meetings, progress meetings to discuss and agree appropriate actions to ensure compliance with ESHS obligations. • Check that the (sub)/contractor's actual reporting (content and timelines) is in accordance with the contactor's contractual obligations. • Review and critique, in a timely manner, the contractor's ESHS documentation (including regular reports and incident reports) submitted to Environmental Expert and to provide advice to ensure the accuracy and efficacy of the documentation. • Undertake liaison, from time to time and as necessary, with project stakeholders to identify and discuss any actual or potential ESHS issues. And report to Environmental Expert. • Prepare a brief monthly report that describes the work that the Engineer's ESHS Key Expert/s have undertaken, the issues

		(including any (sub)/contractor's ESHS noncompliance) identified and the actions taken to address the issues.
7.	Project Implementing Contractor *(Contractor ESHS expert)*	• In liaison with the supervising consultant to ensure acquisition of all statutory safeguards related among other permits or licenses required for any activities at the construction site • The contractor shall prepare, implement and comply with road safety requirements as shall be stated in the contract • Prepare and implement an incidence response plan, grievance redress mechanism, as well as maintin the accident/incidence records and GRM logs • Prepare, implement and comply with HIV/AIDs and all other social and environmental mitigations as shall be stated in the contract documents, ESMP and ESHS. • Prepared a C-ESMP, Covid-19 management site plan, ESHS plan and Waste management plan in compliance to ESIA report, National laws and World Bank safeguards operational policies. The contractor shall be required to implement and comply with the requirements of the approved documents. • Keep a dialy diary of safeguards implementation and complies activities on site. • Hire and keep on site the right personell to implement the safeguards requirements of the project. • Report promptly on any major incident/accident on site to the supervising consultant and the proponent.

Figure 3-1: Project Supervision Organogram

3.3.3. Uvuvi House Construction Supervision, Monitoring and Reporting

Several safeguards tools have been prepared to assist in implementing environmental management and sustainability requirements on the project. Several institutions as captured on Table 3-6, will play differing roles as shown on the table. The technical clauses attached in here under *Annex XIV* and the C-ESMP to be prepared by the contractor shall serve to ensure that the contractor observes his obligations of implementing the requirements of the EMoP and ESMP as per National law and World Bank requirements. Reporting on Uvuvi house implementation activities shall be done at several levels. The supervising consultant shall be in charge of the daily reporting on site, on behalf of the client (SDFA&BE) as captured Table 3-6. The consultant shall in consultation with the contractor team prepare all the required reports including site meeting minutes and submit to the client.

The progress reports prepared shall be on monthly and quarterly basis. The client (SDFA&BE) including the project engineer and social safeguards team shall review the reports and submit to the World Bank for comments and approvals. NPCU team shall also conduct quarterly monitoring visits to advise on the progress of the project. The Worl Bank team on the other hand shall be conducting semi-annual monitoring mission to advise on the implementation progress. The supervising consultants shall on a daily basis supervise the implementation of the CESMP, ESMP and EMoP. The client's social safeguards team shall also conduct regular and impromptu

monitoring to ensure that all the requirements of the World Bank and National laws are adhered to as captured in the ESMP and EMoP, read together with the attached annexes for guidance. The safeguards team shall also through KEMFSED M&E develop GEMS tool for data collection, remote supervision and monitoring safeguards requirement implementation activities.

3.3.4. Contract Management, Administration and Conflict Resolution

The design review and supervision consultant overseeing the works shall be in charge of managing the project contract on behalf of the client (SDFA&BE). Before the commencement of the construction activities, there shall be clarification of supervision and monitoring procedures and responsibilities, once the contractor is procured. The requisite instruments including the monitoring indicator checklist as *attached in **Annex XV*** shall be refined in alignment to site-specific C-ESMP that shall be prepared by the contractor. The supervising consultant in addition shall be responsible of resolving any conflicts that arises between the client (SDFA&BE) and the contractor. The consultant shall advice the client on the necessary actions that shall be required. Disputes shall be settled amicably through a mutual engagement process that shall be specified in the contract. However if any dispute arises related to the contract cannot be resolved amicably among the aggrieved parties, the matter maybe referred to a competent adjudication/arbitration person or institutions in accordance to national laws related to contract management. The identification of an institution or person or procedure agreed upon by the aggrieved party shall guided by dispute settlement clauses in the contract.

4. ENVIRONMENT AND BASELINE CONDITIONS

4.1. Chapter Overview

This chapter describes the existing environmental and social baseline conditions within the proposed Uvuvi house office building site and the associated social facilities' Area of Interest (AOI). The conditions described include the physical environment, biological environment, and socio-economic setting within the AOI.

4.2. Project Location and Area of Influence

The proposed project is located in Nairobi City County, Lang'ata Sub-county, South C ward, Nairobi West Location, and South C sub-location. The coordinates of the four corner points of the project location plot were as indicated in Table 4-1. The plot relative to the immediate surrounding area is as shown in Figure 4-1

Table 4-1: Coordinate points for Uvuvi house plot

Plot Corner points	Latitudes	Longitudes
1	1°19'30.97"S	36°50'10.85"E
2	1°19'28.94"S	36°50'15.68"E
3	1°19'22.40"S	36°50'12.91"E
4	1°19'24.11"S	36°50'9.00"E

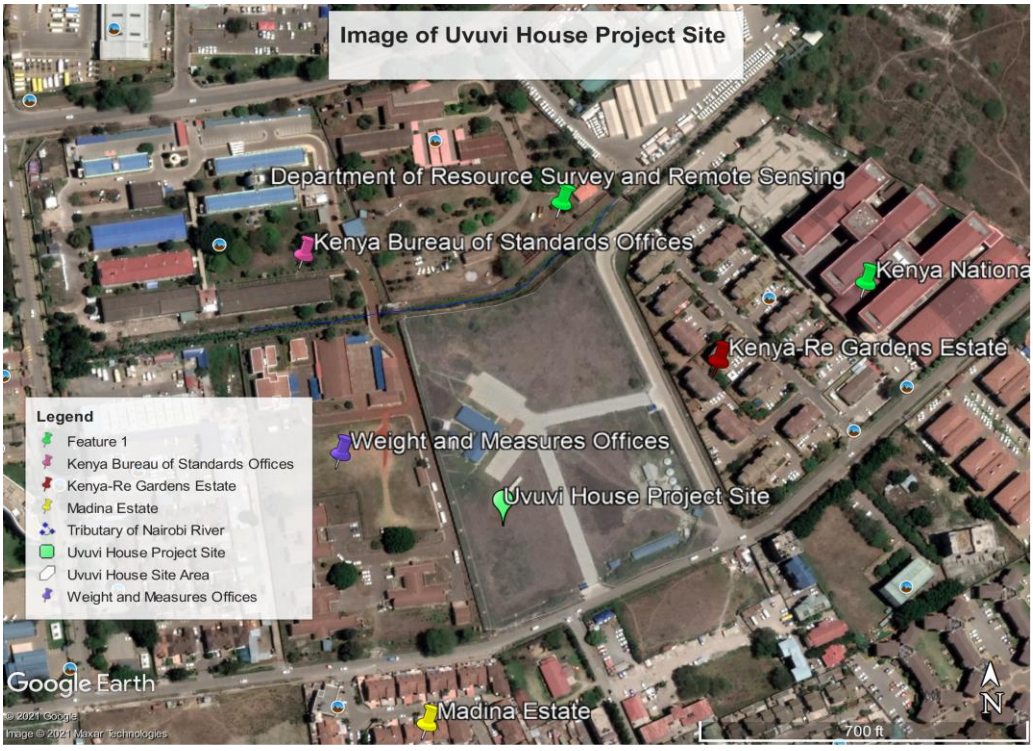

Figure 4-1: Google Image of Uvuvi House Location

4.3. Physical Environmental Baseline Conditions

4.3.1. Climate and Meteorology

Satellite-derived data for the proposed project site was used to describe the climate and weather patterns of the project area. Data from Climate Hazards Center Infrared Precipitation with Station data (CHIRPS) was used to estimate rainfalls within Nairobi City. The environmental assessment study team acquired climatic satellite spatial data for temperature, wind speed, relative humidity and radiation from FAO CLIMWAT.

4.3.1.1. Rainfall

Satellite derived precipitation *(Climate Hazards Center Infrared Precipitation with Station)*for the past 40 years spanning 1981-2019 for the Nairobi area was obtained. The project area coordinate points were used to determine general monthly rainfall distribution and annual rainfall amount in the proposed project area. The findings indicated that the project area usually experiences a bi-modal rainfall pattern with relatively high rainfalls under the long rains experienced between March and May compared to the short rains received between October and December, as indicated in Figure 4-2. The figure also shows that July is the driest month while April seems to be the wettest month within the proposed Uvuvi house project area. The average annual rainfall were noted to be about 842mm.

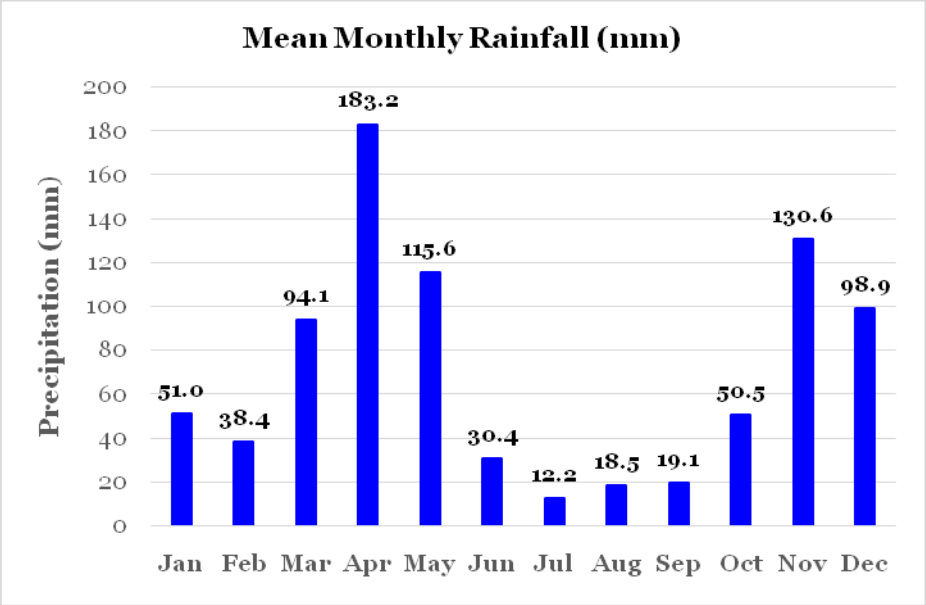

Figure 4-2: Mean Monthly Rainfall

4.3.1.2. Temperature

Satellite-derived temperature data for the same point and over the same period as indicated in the previous section (4.3.1.1) above was used to compute the air temperature within the project site. The temperature data analysis in the area, as indicated in Figure 4-3 shows that March is the warmest month with an average temperature of 19.45˚C while July, with an average temperature

of 15.6˚C, was the coldest. However, the average annual temperature in the project area was noted to be 17.77˚C. temperature in an area influences the working conditions for the workers. The welfare of the workers shall not be at risk of dehydration during the construction of the Uvuvi house office building project. In spite of this, the contractor shall ensure sufficient drinking water provision to avoid dehydration cases during the construction period. The provision of clean water shall also ensure the safety of workers who may be tempted to use unclean water sources is put into considerations during project implementation.

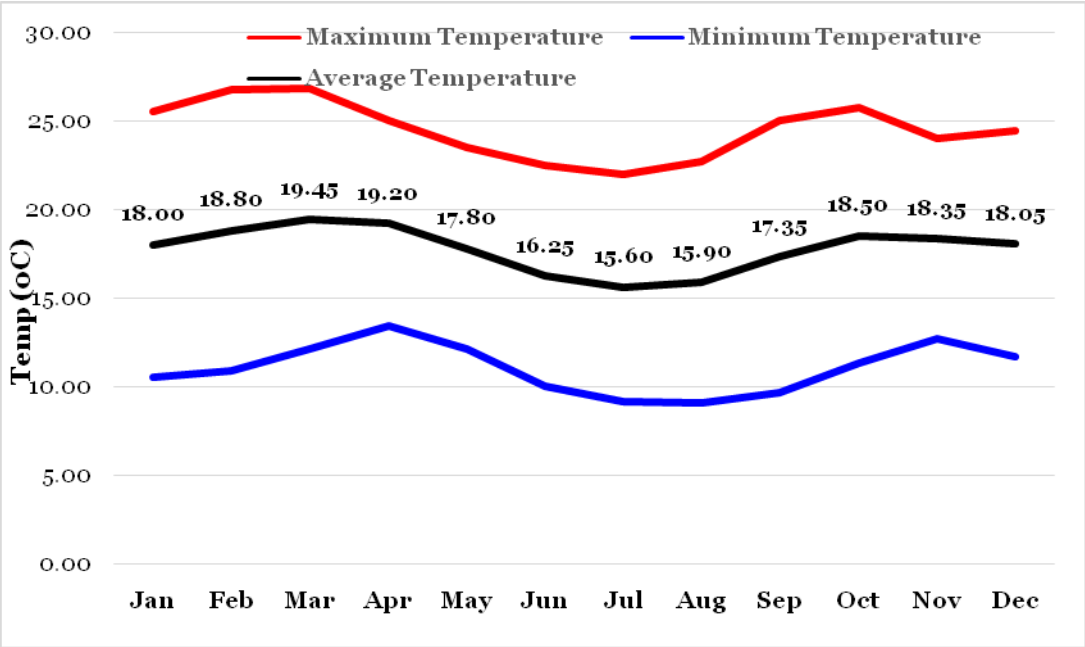

Figure 4-3: Average Monthly Temperatures

4.3.1.3. Relative Humidity (RH)

The average monthly relative humidity within the project Area of Interest (AOI) is about 72.5%. This is comparatively high if compared with most parts of the country. Seasonal mean monthly values fluctuate between 66% in February to 78% in July, as shown in Figure 4-4. Highlighting the relative humidity within the project area is significant, given the RH influence on body heat loading among the workers on site. Relative humidity (RH) directly influences the amount of moisture evaporated from workers' skin to the atmosphere, contributing to the body cooling effect. The proposed project area experiences relatively low wind speeds, as indicated in section 4.3.1.4, which shall reduce the rate of moisture being evaporated from the skin, contributing to body heat loading to the workers. In spite of this, there will be a need to provide enough water on-site during the hot periods between the month of December and March at the construction site to compensate for the loss through sweat.

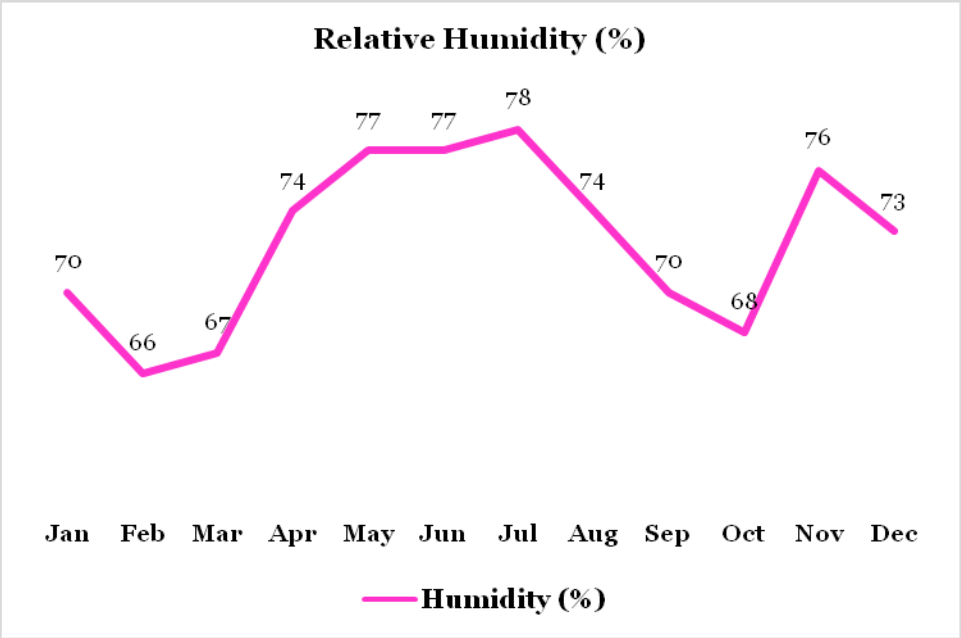

Figure 4-4: Relative Humidity

4.3.1.4. Wind Speed

The satellite data for wind speed indicated that the average monthly wind velocity experienced in the project area is about 1.78m/s with the lowest wind speed of 1.1m/s being experienced in the month of July while the highest is 2.3m/s occurring in December and January, as indicated in Figure 4-5. Wind speeds influence the subsequent changes in the rate of heating, evaporation, transpiration and the microclimate within the working area. The wind speed, in addition, may aid the dispersal of particulate matter, affecting air quality status on site for the workers and the general community health. Despite the low average wind speeds experienced within the proposed project area, it is anticipated that it shall aid in carrying the particulate matter from site dispersing to areas around the project site. The proposed project implementation can capitalize on the use of silt screens, and low wind speeds to reduce the anticipated impacts to air quality degradation.

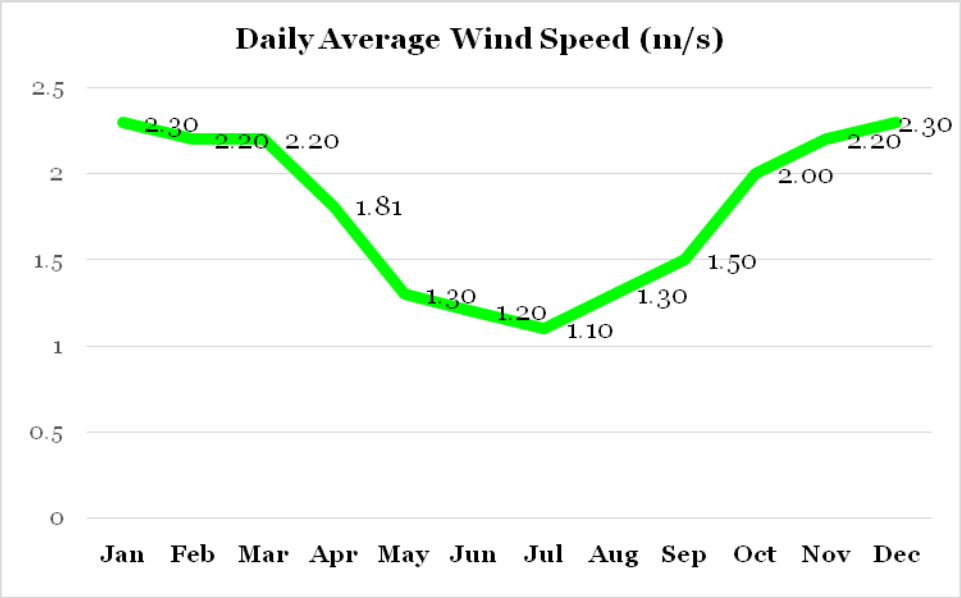

Figure 4-5: Daily Average Wind Speeds

4.3.1.5. Radiation

The proposed project area experiences average monthly radiation of about 19.27 Rad (MJ/m^2/day) with the maximum radiation of 24.5 Rad (MJ/m^2/day) occurring in the month of February and a minimum of 13.8 Rad (MJ/m^2/day) being experienced in July as indicated in Figure 4-6. Solar radiation consists of different light frequencies that can pose a health hazard, especially to workers exposed to the sun for long hours, with the eyes and the skin bearing the greatest brunt. Therefore, there will be a need for the project contractor to take this into consideration during the construction period, particularly during the month when the radiations are high from January to Match.

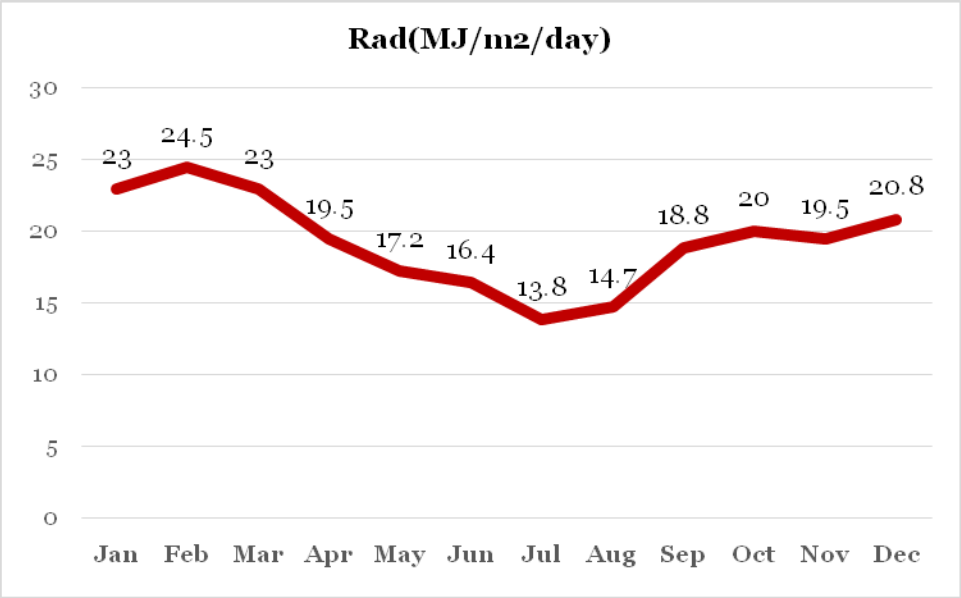

Figure 4-6: Average Daily Radiation

4.3.2. Topography

Satellite imagery was used to determine the general topography of the proposed project area through mapping out the contours. The map was downloaded from Google Earth and processed to get the contour map of the general area. The delineation of the area was from Kenya Literature Bureau (KLB) road, along Popo road and finally joining back to Mombasa Road through the feeder road (Paupau) road passing next to the site as shown in Figure 4-7. The analysis found that the terrain slopes from KLB road towards Mombasa road with the lowest point being adjacent to Mombasa Road at elevation 1645m above the sea level while the highest point was at elevation 1659 m along KLB road. The proposed project site is found at elevation 1652m, as indicated in Figure 4-8. A natural water course forms the northern boundary of the project plot that collects water from the delineated area channeling it towards the north-eastern direction relative to the plot, towards Mombasa road. The plot measures about 7.5 acres with a general sloping gradient towards the north-eastern direction. The highest point on the plot is at an elevation of 1652m above the sea level on the South-Western part of the plot and the lowest point is at 1648m on the North-Eastern part of the plot. The mapping of the contours was influenced by the possible natural flow of water, assuming there were no developments in the area.

Figure 4-7: Delineated area of Influence to project site

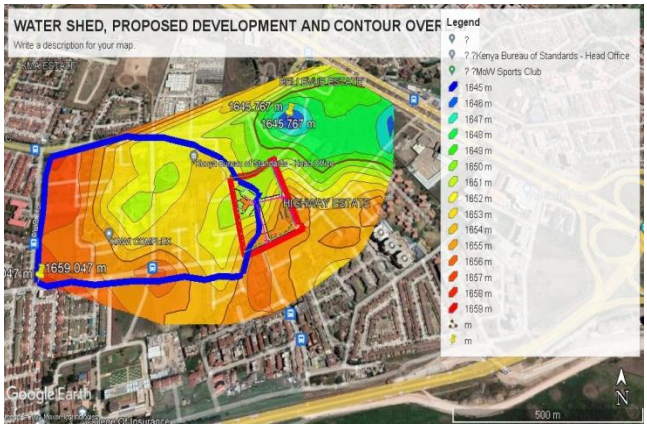

Figure 4-8: Contour Map of the project area

4.3.3. Soils and Geology of the Project Site

The site falls within the upper Athi Kapiti plains region of Nairobi City County. This area is characterized by soils formed mainly as a result of volcanic activity forming the plains. Black cotton soils characterize the site with its basement rocks at an approximate depth of less than 2 metre in some sections. The geology and soils within the proposed project area were investigated through a geotechnical survey. The findings of the geotechnical survey, as attached in ***Annex II***, indicated that the surficial soil layers within the proposed project site consisted of dark brown to blackish, fine-grained, clayey silts with some sand traces of gravel with high plasticity. The geotechnical report results further showed that the average thickness of the top soil layer varied in depth, approximately 1.5m at borehole 101 and an average depth of 1.0m at both borehole 102 and 103. The top soil layer was reported to be underlain by layers of highly rubbled, moderately strong to strong, pale grey, speckled white, fine-grained phonolites, and trachytic phonolites showing the differing degree of weathering from moderately weathered to highly weathered at differing depths. The phonolites were noted to extend to the final depths of the site investigations in all the boreholes that were drilled.

4.3.4. Drainage and Flood Management

The proposed Uvuvi house project site experiences flooding during heavy rain seasons due to several contributory factors including: the plot being at a relatively lower point as highlighted in Figure 4-8, hence surface runoff naturally drains through the plot into the natural water course on the northern boundary of the plot; inadequate and poorly maintained drainage system; and due to storm water overflow[10] from blocked sewer manholes on the plot, that are contaminated with surface run-off during rainy seasons. The contour map in Figure 4-8 indicates that the southern part of the plot is slightly higher in elevation compared to the northern side. Relative to other surrounding plots, the site is at a lower point and surface runoff along the roads from Madina

[10] The general South C area experiences flooding problem, due to inadequate drainage in the area, caused by people constructing without providing for natural water flows along the courses. The area therefore sometimes experience floods which drain through submerged sewer manholes.

estate as shown in Figure 4-9, Kenya Assemblies of God church Figure 4-10 and Dafam Hotel in Figure 4-11, all converge near the southern gate and enter the plot due to inadequate drainage system as indicated in Figure 4-12, causing flooding on the plot.

Figure 4-9: Photo taken Opposite of Madina estate gate with Land sloping towards the gate to Uvuvi house plot

Figure 4-10: Channel draining water from Kenya Assemblies of God Compound

Figure 4-11: Road from Dafam Hotel sloping towards Uvuvi house plot

Figure 4-12: Road Junction from Madina Estate and Dafam hotel opposite Uvuvi House Southern gate

Observations from site visits revealed that although there are drains within the area, they were inadequate and poorly maintained as shown in Figure 4-13 and seemed to be inadequate to handle the volume of water generated from the adjacent estates, e.g., Madina, as in Figure 4-14. Findings from informal consultations with some of the residents in Madina estate indicated that flooding around the estate gate is experienced and an issue of concern. It was observed that due to poor and inadequate drainage downstream of madina plot, there is backflow that affects the

entrance to the estate during heavy rains. In spite of this, flooding remains a significant concern to the general South C area residents. Therefore, there is a need for SDFA&BE to initiate consultations with the county government and neighbouring stakeholders with the objective of constructing an adequate drainage system in the area neighbouring Uvuvi house site if the existing storm water menace is to be managed sufficiently. However, at the project level, mitigation measures have been considered by the design team, proposing to collect surface runoff and channeling it to the natural water course passing on the northern side of the plot as indicated in Annex I-B. The measure shall reduce the amount of water entering the plot through the existing southern gate.

Figure 4-13: Poorly maintained drain at the Junction opposite Uvuvi House Southern gate

Figure 4-14: A drain from Madina Estate discharging into the drain on Paupau road

Though the proposed Uvuvi house plot usually floods due to inadequate and poorly maintained drainage system in the area, discussion with the guards at the gate revealed that some of the sewer manholes within the property premise usually overflow during rainy seasons, spilling the content which flows across the compound to the natural water course on the northern boundary of the plot. The observations by the guard were suspected to be due to contamination of the sewerage system by storm water upstream. And due to blockage or inadequate capacity of the sewer line around the plot to carry the storm water volume flow, the content spillover through the maintenance holes. The maintenance holes cited were those near the gate as indicated in Figure 4-15, which form part of the line connecting the laboratory waste water drainage to the main sewer trunk passing along the paupau road in front of the southern gate in Figure 4-16. There was contact with Nairobi City Water and Sanitation Company to increase the size of sewer trunk so as to have the capacity to handle the high volume of wastewater from the proposed office building. The design team also proposes to raise the manholes to create enough pressure and put gate valves to mitigate against any backflows from the sewer trunks in the event of being

contaminated by storm water. Other additional measures proposed in the design of the project were landscaping to be done in a manner that allows for drainage of the plot and raising the entire surface of the building by 2m. The measures proposed are anticipated to ensure the impacts of floods to the project site are mitigated.

Figure 4-15: One of the Manholes just opposite the gate cited to overflow

Figure 4-16: Manhole at the southern gate inside the Compound reported to overflow

4.3.5. Water Supply and Quality

Consultations with some of the residents within the project area revealed that the main sources of water to the general area are boreholes and supply from Nairobi Water and Sanitation Company (NCWSC). However, NCWSC supply was reported to be unreliable, supplying 2-4 days a week as was reported by the residents. Consequently, the water sources for Uvuvi house building is planned to be supplied by water by 2 sources, from a borehole to be drilled as per the attached hydrogeological report in ***Annex XI*** and supplemented by Nairobi City Water and Sanitation Company as per commitment letter ***Annex XVIII***. The proposed Uvuvi house is anticipated to have a peak occupancy of 1000 persons, which shall require a high supply of water to the building with a daily consumption of $50.9M^3$ as indicated in section 2.4.3.2 of this report hence the necessity for adequate water supply. There was a need for assurance on the quality of the water sources for the new building. And water quality results were therefore requested from NCWSC for the tap water supply. The findings as attached in ***Annex XXII*** indicates that the NCWSC meets water quality standards for domestic water supply. However, the water quality for the proposed borehole to be drilled could not be established at this point of the project phase. It is therefore a requirement for the tests to be conducted once the borehole is drilled and before the water is supplied to Uvuvi house building for use by the occupants.

4.3.6. Waste Generation and Management

The main sources of waste within the proposed project area are offices, restaurants and hotels, residential places, and construction sites. The waste from observation on site was noted to be mainly nonhazardous, consisting of organic and inorganic municipal materials. The main streams of waste observed were organic and inorganic materials, including plastics, polythene bags, cardboards, paper, wood wastes, food remains, soil, human hair probably from a barbershop, plant remains, concrete waste, and debris waste from construction sites, among others. An increase in waste generation is anticipated during project implementation from construction activities, contractor's camp, operation phase of the building, waste from the economic activities at the building and littering by the facilities' users, and debris waste at decommissioning. On the other hand, if not well managed, waste can lead to environmental degradation of air, clogging of sewer lines or drainage system, affects biological diversity, and contaminates water courses or the soils. Field observations noted illegal dumping, particularly on the South-Western corner of the proposed project plot, as indicated in Figure 4-17. The illegally dumped waste was noted to be haphazardly dispersed in the environment by the wind, as shown in Figure 4-18. Other than the wind action, the waste were noted to be carried to storm drains by storm water surface runoff as captured in Figure 4-19. The waste cause blocking of combined sewerage system leading to overflows particularly during rainy seasons, in the event that the sewer system is contaminated by surface runoff which is a common occurrence in south C area because of poor drainage system that leads to frequent flooding in the area.

Nairobi County Government is responsible for waste management in the area, waste being a devolved function. But due to inadequate capacity to meet the demand for waste management services, the county government has licensed private waste management companies to assist in delivering the service to the residents. Stakeholder consultations' findings indicted that most offices and residential services have understood such private waste management service providers. Some of the waste collectors were observed during the site visit, as highlighted in Figure 4-20 from events waste management. Others seen on site were environmental care, Sanwa cleaners, and bees waste collectors. The waste was reported to be dumped at the Dandora dumping site, the major dumpsite operated by Nairobi City County. The residents pay a fee for the services, but the agreement should be with a company licensed by both NEMA and Nairobi City County. There will be a need for the Uvuvi house construction contractor, SDFA&BE and the project decommissioning contractor to consider seeking the services of such licensed waste collection companies, unless the county government and NEMA register them. The main source of waste during project construction shall be from foundation excavations. It is anticipated that about 16,767m^3 of excavated materials shall be generated on site. However most of this waste shall be used for backfilling while the expected volume for disposal - surplus excavated material is expected to be 7,625m^3. The contarctor to consider using the excavated materials for reclaiming open quaries through identifying and entering into an understanding with such quaries or disposing of the materials in NEMA authorized dumping sites for such materials.

Figure 4-17: Illegal Waste dumping Along Uvuvi House Site fence

Figure 4-18: Polythene Waste dispersed Along KBS fence Opposite Madina Estate

Figure 4-19: Polythene Waste from Storm Drain Opposite Dafam Hotel

Figure 4-20: Waste Collection track from Events Waste Management

4.3.7. Ambient Noise and Vibration Levels

Noise pollution possesses both auditory and non-auditory effects on the exposed population. Uvuvi house project site neighborhood is predominated by offices, hotels and restaurants, commercial and residential tenements. Construction activities, general conversations by people, motor vehicles running engines, and hooting are the main noise sources at the existing proposed project sites. The noise and vibrations levels at the proposed project site is anticipated to change during the project cycle from foundation excavation, movement of construction vehicles, general construction activities and conversation on-site, restaurants, auditoriums, and vehicles moving in and out of the proposed building at the operation as well as from demolition activities during the decommissioning phase of the project. Therefore, there was a need to conduct a baseline survey

to establish the ambient noise levels for subsequent tracking during the project lifecycle. As indicated in Annex IX, the noise level results show that the existing noise level at 2 of the 4 points sampled, MP3 and MP4, was higher than NEMA recommended standards. The levels were 56.6 and 56.8 LAeqdB, respectively. The 2 points were at the southern and eastern gates of the plot with access roads adjacent to the gates. The main sources of the noise were noted to be vehicle movement along the access roads. It was observed elsewhere in a study that noise levels on main roads range between a minimum of 60.1dB (A) and a maximum of 110.2 dB (A) (Murthy et al., 2007). This shows that the proposed project will have a cumulative effect on the noise levels around the project area, given that the levels are already above standards.

4.3.8. Air Quality

Air pollution around the general project was mainly associated with pollutants generated from automobile emissions, construction activities, and particulates from moving vehicles or wind action in the area. The gaseous and particulates pollutants are anticipated to increase with the proposed project activities. The degradation of air quality has a direct impact on both public health and climate change effect. Monitoring of air quality is a concern to Kenya, and NEMA has prepared air quality regulations that were yet to be gazetted at the time of reporting. A particular concern is about the anticipated increase in exhaust fumes from moving automobiles, construction machines, and equipment during construction periods. The loose soil particles from excavations on-site combined with wind action within the project area are anticipated to be a nuisance during the project construction period. Therefore, an air quality survey was conducted as highlighted in ***Annex IX,*** and the findings showed that of all the parameters that were analyzed *(carbon monoxide (CO), Carbon Dioxide (CO_2), Sulfur Dioxide (SO_2), Nitrogen dioxides (NO_2) and Particulate Matter (PM_{10}))*, only CO_2 had levels above the NEMA recommended standards at all the 4 sampling points. The finding indicates that the project will have a cumulative effect to the impacts of CO_2 levels within the proposed project site. It is important to note that the NEMA standards seem to be way below the global ambient CO_2 levels compared to the current global levels as extracted on 15th September 2021 CO_2 was PPM 415.17 $\mu g/m^3$ from www.co2levels.org.

4.3.9. Visual Impact

The proposed Uvuvi house office block is among the few buildings existing within the project site neighborhood that shall be towering the skyline of the area as highlighted in Figure 4-21, which is being constructed just behind Dafam hotel with a height of 42m from ground level, opposite the Uvuvi House southern gate. The other relatively taller buildings were as shown in Figure 4-22, depicting Kenya Re Gardens Estate in the foreground and the Kenya National Examination Council (KNEC) offices in the background. Other high-rise buildings and offices dotting the skyline were as indicated in Figure 4-23 and Figure 4-24. The tallest building within the neighbourhood site is about 42m high, and the Uvuvi house shall be 43m from the ground level. However, Uvuvi house shall be located on a lower ground relative to the current tall building, which indicates that generally, the 42m building in Figure 4-21 shall remain taller than

Uvuvi house. The height of buildings within the project area is regulated due to the flight path from Wilson airport which is within the general project area. However, the project design meets the requirements of the Kenya Civil Aviation Authority (KCAA) and Kenya Airports Authority (KAA), who have approved the building design as per ***Annex VI***. But other than consideration of flights, the building could be intrusive, obstructive, or possibly of perceived nuisance impacts to the surrounding environment and to residents. However, the proposed building has borrowed a lot of design concepts from nature which is anticipated to add beauty to the area's skyline. The final finishes of the exterior of the building shall therefore determine the realization of the aspirations expected. The design of the building also proposes use of potted plants to the exterior which is anticipated to enhance the beauty of the building and appealing to the eyes.

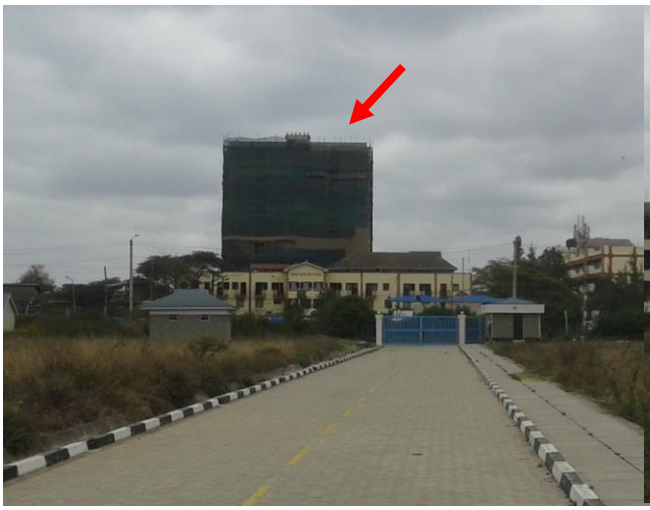

Figure 4-21: Construction of Commercial Building Behind Dafam Hotel

Figure 4-22: Kenya-Re Gardens Estate and KNEC offices in the Background

Figure 4-23: Other High rise Buildings Dotting the Skyline at the Project Site.

Figure 4-24: The Kenya Petroleum Office building in the Background

4.4. Biological Baseline Conditions

The general area around the proposed project site is a highly modified environment due to anthropogenic activities. The immediate surrounding area is built with residential houses, offices, hotels, restaurants, and tarmacked access roads. No vegetation on site shall be affected by the proposed construction activities other than weeds and grass on site. However, the proposed project provides an opportunity through landscaping to introduce native plants and other tree native species within the area to improve biodiversity conditions, bring back bees, butterflies, birds and other flora and fauna disappear from the area. Greening of the compound shall augment carbon sequestration from vehicular emissions on the compounds and within the immediate site areas.

4.5. Socio-economic Baseline Conditions

4.5.1. Population

Nairobi City County has experienced an exponential change in population over time, as indicated in Figure 4-25, and had a population of 4,397,073 as per the 2019 National Housing Census with an approximate growth rate of 4.1 % per year. The national population is projected to stand at 55,238,854 as per the current United Nations Population service 2021. The total number of households as per the 2019 census stood at 1,506,888, with an average Household size of 2.9. Women population account for 50.1 percent representing 2,204,376 females while male account for 49.9 percent. Langata sub-County, where our project site is located, recorded a total of 197,489 Households (2019 Housing Census).

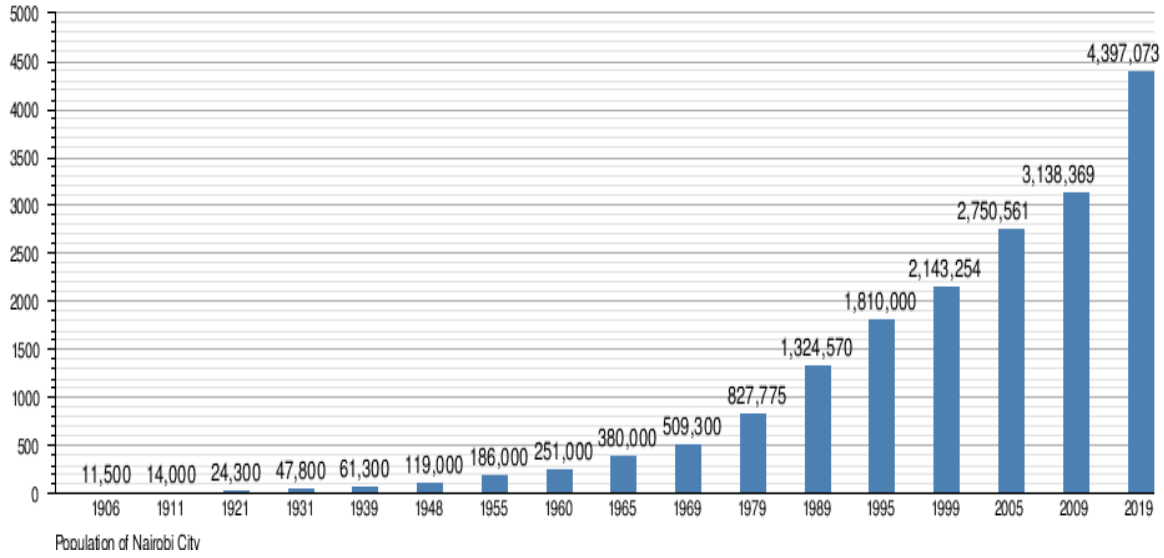

Figure 4-25: Changes in Population of Nairobi city Source by KNBS

4.5.2. Social Amenities and Physical Infrastructure

The immediate neighbourhood has several social amenities and facilities. These include but are not limited to two churches, Medina Mosque, Kenya College of Insurance, Boma International School of Hospitality, Kenya Redcross, and Akiba Police Post.

In terms of structure, the area is well connected with tarmac road off the main Muhoho Avenue as detailed in item 4.5.8 below and cabro access roads on the plot were observed as captured in Figure 4-28. Further, the area is connected to the main Nairobi trunk sewer lines, as shown in Figure 4-26 and storm drain channel. Power supply in the area is by Kenya Power and Lighting Company (KPLC) shown in Figure 4-27.

Figure 4-26: NCWSC sewer Manhole on site

Figure 4-27: KPLC Power lines noted on site

Figure 4-28: An access road on the plot

4.5.3. Land Use and Zoning

The current use of the project land is commercial, as evidenced in the **special conditions number of the lease** for the land where the land is designated for offices. This means that the proposed Uvuvi House office complex conforms with the use of the land; thus no need for an application for change of Use from the Nairobi City County Government.

The zoning policy for the area as per the then Nairobi City Council Development Ordinances and Zones provides that this is a mixed-use Development area with high density. This is even evident with the existence of office buildings, residential, religious, hotels etc. in the immediate and wider neighbourhood. Our site is in Zone 10, as per the table below.

ZONE	AREAS COVERED	GC	PR	Dept Ref. Map	TYPE (S) OF DEVELOPMENT ALLOWED	MIN. AREA (Ha.)	REMARKS/POLICY ISSUES
9	**Main Industrial Area**	80	300	CP/FP/XXX	Industries/Godowns	0.05(on sewer)	Becoming Over Developed
9E	**Dandora Industrial Zone**	80 (s) 50(u)	150(s) 100(u)	CP/FP/XX	Light Industries/Godowns	0.01 if not on sewer	Ruaraka EPZ covered
	Kariobangi Lt/Industrial	50(u)	100(u)	CP/FP/XX			
	Mathare North Lt/Industrial	50(u)	100(u)	CP/FP/XX			
	Kariobangi Lt/Industrial	80 (s) 50(u)	150(s) 100(u)	CP/FP/XX			
10	**Nairobi West**	35	75	CP/FP/XX	High Density Residential Development Mixed Residential Development • Flats, • Maisonettes • Bungalows	0.5	• Comprehensive subdivision allowed with lower sizes on type plan • Development density @ 35 units per hectare
	Madaraka						
	South 'B'	35	75	CP/FP/XX			
	South 'C'						
	Nairobi Dam	50	75	CP/FP/XX			
	Ngummo	50	75	CP/FP/XX			
	Highview						
	Magiwa						
	Golf Course						
	Langata Estates			CP/FP/XXXX			
	• Southlands • Otiende • Ngei 1&2 • Onyonka • Masai • Uhuru Gardens • Jonathan Ngeno	50	75				
10E	**Villa Franca**	50 (s) 25(u)	75 (s) 25(u)	CP/FP/XX	Residential Mixed Development	0.5	• Area not fully sewered • Comprehensive subdivision allowed with lower sizes on type plan (max 35 units/ha.)
	Imara Daima	50	75	CP/FP/XXXX			
	Tassia						
	Fedha						
	Avenue						
	Embakasi Village			CP/FP/XX			
	• Commercial	80	150				
	• Residential	50	75				

Source: Extract of Nairobi City Ordinance and Zoning

4.5.4. Land Tenure

The consultant established that the proposed project site is owned on leasehold basis and the proponent has a certificate of lease as proof of ownership as indicated in annex III. This is a 99-year lease from the ***April 1st 1999 as evidenced in grand of title I.R. No. 105573*** *(See copy of Lease attached in the Annex III hereto of the ESIA report).*

4.5.5. Historical and Archaeological Artifacts

By the time of this assessment, there are no documented facts or evidence of the existence of archaeological artifacts and any such treasures on and or around the site. This means unless, by chance that during excavations works by the project contractor, measures will be put in place to

secure and safeguard such in liaison with the state department of archaeology and or other concerned institutions as by law provided.

4.5.6. Residential and Economic Locations

Because our site falls within a mixed-use development zone as detailed in 4.5.3 above, the immediate neighbourhood has residential estates such as Kenya-Re estate, Madina Estate, and elegance estate. There are also commercial establishments, mainly government institutions, such as Kenya Bureau of Standards (KEBS), NEMA Kenya head office, Directorate of Resource Surveying and Remote Sensing (DRSRS), the Boma Hotels, Well Fargo security Company among others.

4.5.7. Planned Development Activities

There is no clear information on planned development activities in the area apart from already established ones and some scattered in the neighbourhood with signage of proposed constructions. This is because generally, development trends in this area are sporadic as they are mostly based on market forces of demand and supply besides availability of finances and is also mostly spearheaded by the private sector apart from mainstream government installations.

4.5.8. Transport and Accessibility

The project site is served by a tarmac road off the main Muhoho Avenue, as indicated in Figure 4-29. This has ensured the highest level of accessibility to the project site. There will, however, be improved with acceleration and deceleration lanes to separate express and local traffic to and from the premises.

Figure 4-29: The main road Connecting the project site at the Southern gate

5. PUBLIC PARTICIPATION AND CONSULTATION PROCESS

5.1. Chapter Overview

It is a policy requirement by the World Bank and the Government of Kenya constitutional requirement that beneficiaries and members of the public living near any project sites who have a stake or interest in the project (both public and private) be consulted to seek their views and opinions regarding the projects before they are implemented. Public and stakeholder consultation is required under the Environmental Management and Coordination Act 1999 as amended in (2015), Environmental Impact Assessment and Audit Regulations (2003), and the World Bank's operational policy 4.01. Public and stakeholder consultation is useful for gathering environmental and socio-economic information, likely understanding impacts, and determining community and individual preferences. Through this process, stakeholders can contribute to the overall project design by making recommendations and raising concerns. In addition, the process creates a sense of responsibility, commitment, and local ownership for the smooth implementation of the project.

Effective public participation requires the availability of adequate information in public inputs. The latter involves various values, critiques, questions, information, suggestions, and other inputs expressed by individuals, groups, or organizations among the general public to influence decision-making. Public consultations with Interested and Affected Parties (IAPs) were done in order to:

i. Inform the local people, leaders, and other stakeholders about the proposed project and its objectives;
ii. Initiate public involvement processes in a bid to induce and cultivate a sense of peoples' belonging to the project;
iii. Suggest and facilitate the peoples' roles in the project's sustainability, in terms of management, maintenance, and productivity;
iv. Seek views, concerns, and opinions of people in the area concerning the project.
v. Establish if the local people foresee any positive or negative environmental effects from the project and, if so, how they would wish the perceived impacts to be addressed;
vi. Find out if there are issues or places of cultural/or religious importance to the local communities that the project and its infrastructure could negatively impact.

5.2. Legal Requirements for public Consultations

The Environmental Management and Coordination Act (2015) and the Environmental Impact Assessment and Audit Regulations (2003), set out the minimum requirements for stakeholder consultation and engagement. Further details of the legal and regulatory requirements that apply to the project are provided in Chapter 3 of this report.

5.3. Objectives of Consultations

The overall objective of Public consultation was to disseminate information to interested parties,solicit their views and consult on sensitive issues. Specific objectives included:

- To identify community needs and ensure that those needs are documented before the project commences.
- To avoid conflicts by addressing issues promptly.
- To ensure that any suspicions or uneasiness about the project are fully addressed.
- To avoid misunderstanding about the locations of the project
- To inform communities about and discuss the nature and scale of adverse impacts of the project on their livelihoods in a transparent and direct manner and seek their participation in the project cycle.
- To identify and discuss mitigation of the impacts that may arise from the proposed project for brides.

5.4. Stakeholders for Uvuvi House Construction

5.4.1. Primary Stakeholders

These include all the residents in the project area and business enterprises dotted across a radius of half (0.5) a kilometer to be impacted by the proposed project.

5.4.2. Secondary Stakeholders

The main secondary stakeholders could include all of the following depending on how the Uvuvi House construction is contracted:

- Nairobi County Government: This is the county authority where the building will be located. Nairobi County Government provides various approval for construction, and coordinates land zoning.
- National Environmental Management Authority (NEMA): The regulatory agency tasked with protecting the environment and avoiding adverse environmental impacts on behalf of society.
- The Consulting Engineers or APRIM: Contracted to design and assess the proposed Uvuvi House and produce the basic design documents.
- The Construction Company: Being the successful bidders who will carry out the construction activities of the building under review.
- The Supervising Engineers: Working at the behest of the contracting agency, this entity will monitor the construction efforts and is responsible for quality control and insuring compliance with standards and specifications. They are also responsible for the preparation of regular progress reports, which will include the degree to which environmental management expectations and goals have been achieved, which are shared with SDFA&BE.

In addition to these secondary stakeholders, the environmental guidelines and oversight system takes into account the need and interests of other stakeholders, including the following:

- Representatives of the National Administration, the County Commissioner, the Deputy County Commissioner, the Chiefs, the Ward Administrator have a role in representing the local people living in communities affected by the building. Activities and who should be the vehicle for transmitting messages related to health and safety.

- The Ministry of Health (MoH), whose monitoring services are critical to detecting the spread of infectious diseases, particularly HIV/AIDS and COVID 19. The MoH could take an institutional role in HIV/AIDS and COVID 19 Awareness and Prevention.
- The Ministry of Labour and Social Services (MLSS) has the responsibility for enhancing and monitoring gender-related issues, in particular overseeing access to employment for women, advising on child welfare, and ensuring fair labour practices as well as safety of waorkers in work places.
- South C residents/ Kenyans: they are the direct and indirect users who benefit from the services of the Uvuvi House and whose views are generally sought to ratify the social acceptability of the road construction activities.

5.5. Public Participation Process

The surroundings of the proposed Uvuvi House is occupied by the mid-income communities. Therefore, their participation is useful, especially in gathering local information regarding land tenure, area land zoning, construction impacts, individual views, concerns, and preferences, selecting project alternatives, and designing viable and sustainable mitigation and compensation, if any. Public participation was undertaken. It involved all communities living in proximity to the site. Prior to any consultation process, the ESIA team made an advance visit to the residents to ensure that all the relevant parties were well informed in advance of the purpose of the visit and the background information of the building. Unfortunately, it was during the Covid-19 pandemic, and public contact was limited. Therefore, the participation was done through the questionnaire interviews as attached in ***Annex V(a) and V(b).*** In all the questionnaire meetings, the following groups were represented:

- Administrators;
- Small business owner adjacent to the project
- Local residents;
- Resident Associations officials
- Youth representatives;
- Women representatives;
- Traders along the project site access road;
- Commuters
- Public Transport operators

Public participation mode (questionnaire) was influenced by covid-19 health protocols, Government's existing health regulations, educational levels, and political consciousness. We requested individuals who had filled in questionnaires to ascertain their responses to specific questions concerning possible socio-economic impacts of the Uvuvi project during construction and operation. Special attention was drawn to their knowledge of ensuring the healthy socio-economic benefits of the project. The communities identified their needs proposed project:

The need for government to compel the construction company to consider the locals, especially the youth, for employment during the project execution;

The need to ensure that their limited noise and dust from the project

5.6. Response to Public Concerns

This project is unanimously seen by South C as the immediate source of employment for the idle local youths and stronger community members. Therefore, it is evidenced that this proposed project will be a valuable asset to the local communities and Kenyan. The community also feels that the project will bring needed unified Government fisheries services to citizens of Kenya and indirectly enable local communities to benefit from the increased flow of persons in the community. The public consultation shows that the local stakeholders are very supportive of the Project and want the project to be completed as soon as possible. The people surveyed understood the Project contents well and had most concerns about noise, dust, sewer, and traffic safety. The EIA team has recorded concerns raised by the affected public, and together with the design team responsive mitigation measures have been developed and included in this report. The following are the major public concerns and response

5.6.1. Employment of Local Labour Force

The public wants the project to employ local labour to have more income opportunities from the project construction and operation. The ESIA team has transferred the requirements by the public to the State Department of Fisheries/construction company to give full considerations of employing labour (men and women) from local sources. The locals can be used for semi-skilled and unskilled labour and after training for jobs requiring more skills.

5.6.2. Sitting of Borrow Pits and Quarries

The quarries and borrow pits will not be sited on at South C locality. The contractor will conduct due diligence on commercial suppliers of sand and any other needed excavated material need. To help in the specific due diligence follow up with the commercial suppliers, the ESIA has annexed *Annex XVI* on Borrow pit guidelines. All sites must be NEMA approved and their operations must be guided by ***Annex XVI on Borrow Pit guidelines***. The contractor will ensure that commercial suppliers carry out soil conservation and restoration after soil borrowing operation is completed.

5.6.3. Noise and Safety Impact

The public is concerned that construction activities in the city residential neighborhood could cause noise disturbance. Noise nuisance is excessive noise or disturbance that may have a negative effect on health or the quality of life. Noise is expected to be generated by heavy machinery use by the Contractor. For noise impact, this report has provided mitigation measures against noise and traffic, and the contractor is expected to deploy machinery that will cause excessive noise in the community. Warning signs will be erected on construction sites.

5.6.4. Traffic incoveniences

The public is concerned that construction activities could close the roads and impede the traffic in the residential area. As a result of this, entrance expansion and creation of deceleration lane at the main gate will help manage and de-congest traffic. Increased traffic during construction on the residential road during the construction and operation could be a safety concern, particularly to school children. Therefore, the contractor will prepare a traffic management plan during the construction and operation phases. On the other hand, warning signs like "construction ahead,

reduce speed, deviation ahead," among others, will be installed by contractors on their road section. The contractor will designate a staff member to guide traffic when necessary.

5.6.5. Movement of Site Workers

The contractor should restrict the movement of site workers and their interaction with local communities in order to avoid insecurity and to control and minimize COVID 19 and HIV/AIDS transmission during the construction period

5.6.6. Insecurity in the Neighborhood from Workers

Concerns were raised on general security from the beginning to the completion of the project. It was noted with a lot of concern that the general security in the area is important, and workers should not be a security threat. The Contractor should ensure that all workers sign the code of conduct and do not get involved in petty offences in the neighbourhood.

5.6.7. Information Disclosure

This Environmental and Social Impact Assessment and the Environment and Social Management Plan reports will be disclosed to the public once completed. In view of the difficulties in distributing information in the community, the ESIA team carefully proposes the means for information disclosure. The team proposes that the report be distributed to the relevant government offices located within the project site, NEMA office, Kenya Bureau of Standard, Standard Tribunal, Rural Electrification Offices, Red Cross, Kenya Water Institute; at the Commissioners' offices in different estates for public review and reference once finalized and approved.

6. POTENTIAL PROJECT IMPACTS

6.1. Chapter Overview

This chapter highlights sources of impacts; positive and negative, associated with the construction of Uvuvi house office building project, enhancing measures to achieve more positive impacts as indicated in Table 6-1, Table 6-2 captures negative impacts and the description of control measures to mitigate against deleterious effects of the project is as captured in Table 6-3.

6.2. Positive Impacts

The implementation of the proposed construction of the Uvuvi House project is anticipated to have overall positive impacts as shown in Table 6-1, particularly in consolidating all institutions related to fisheries, aquaculture, and blue economy under one roof and providing the client with one-stop service center for fisheries and the blue economy-related services.

Table 6-1: The positive Impacts of the project

NO.	IMPACT	DESCRIPTION
1.	Contribute to improved management of priority fisheries and mariculture	The proposed establishment of the Uvuvi house office building project is part of the contributions towards enhancing key infrastructure development for fisheries management, which is significant in achieving coordinated and improved management of priority fisheries and mariculture and secure storage of data and information.
2.	centralizing administration of key institutions in blue economy,	The proposed Uvuvi house shall to house key entities undertaking and providing fisheries-related functions and services, including; the State Department of Fisheries, Aquaculture and the Blue Economy (SDFA&BE), Kenya Fisheries Service (KeFS), Kenya Fish Marketing Authority (KFMA), Kenya Fish Levy Trust Fund and Kenya Fisheries Advisory Council. The different organizations are currently hosted in various office locations distance from each other around Nairobi County. This shall create one-stop shop for all the organizations under fisheries and blue economy.
3.	Minimize operation costs for the clients and the organizations,	The different offices are currently hosted under various buildings and locations, which come with overheads with operation and maintenance cost requirements. It is also expensive for the different clients to move from one office location to the other/shuttling between offices seeking complementary services over related

		services. Therefore, the proposed Uvuvi house is anticipated to reduce the costs if all the institutions under fisheries are hosted under one building. It will save the client money as well as the SDFA&BE overheads required to operate the different institutions.
4.	Save time for the client	The movement from one office location to the other seeking complementary services currently consumes a lot of time for the clients seeking the services. It is anticipated that with the construction of the proposed office building, the client shall save time wasted which can be invested in other productive economic activities.
5.	Enhance general economic development	The blue economy is being targeted under government policy to contribute towards the GDP of the country. The establishment of Uvuvi house and hosting the different institutions shall be a contributing factor towards harnessing the effort of realizing this objective
6.	Maximize employee satisfaction	The movement of employees from one office location to the other around Nairobi *(museum hill, Kilimo House, maji house, and NHIF building)* during working sessions for personnel from different offices is time-consuming and cumbersome to commute. The different buildings do not have facilities conducive to workers' rights, such as nursing stations. The difficulties are breeding ground for dissatisfaction among the employees. The Uvuvi house centralized office building sub-project shall therefore come in hand to enhance employee satisfaction by improving the aforementioned working conditions.
7.	Improve work productivity	Reducing time wastage of moving from one location to the other and sharing personnel under the same office space shall enhance the workers' productivity if the proposed Uvuvi house project is implemented.
8.	Enhance synergy and efficiency	Uvuvi house's centralized office will enhance bonding and teamwork among employees working together as a group. When employees interact face-to-face, they get to know each other's perspective and style of operation, which enhances experience sharing, synergy, and efficiency on complementary services across the various institutions under the department of fisheries for the clients.

9.	Employment opportunities	During community meetings, residents said they expected job opportunities at the construction site as a result of the Uvuvi House project's operations. The residents observed that local youth would be given job opportunities at the site. The contractor shall make an effort to reach out to residents who will be willing to participate in the construction employment opportunities on-site. Equal opportunities to be provided for all persons interested. Affirmative action's to be considered for people with special needs to participate in the construction activities, based on tasks. In spite of employment opportunities being obvious during project construction, operation and maintenance of Uvuvi house office building will also provide employment opportunities to many people. Decommissioning phase though temporal shall in addition be a source of employment to people.
10.	Market for local construction Materials	The construction of the proposed building shall consume a lot of materials. It was evident from the questionnaires by the residents that there shall be a creation of markets for project construction materials which should be sourced locally from those who can supply. The contractor, therefore, needs to reach out to the residents with the aim of identifying any resident with the capacity to participate in the construction through floating of open tenders, given the high capital intensiveness of the construction work.
11.	Business opportunities	The business opportunities are anticipated during the construction, operation, and decommissioning phase of the project. Provision of eatery services to construction workers shall be a source of business, particularly for women at similar construction sites. The same is expected during the decommissioning phase of the project. During operation, the design of the building has considered the provision of restaurants, which shall provide business opportunities to some at the site. There will be a need for equal opportunity for all where possible affirmative action for business space allocation.

12.	Aesthetic value to the site	The proposed building borrowed most of the design concepts from nature, and it is anticipated that when the building is complete, it will add beauty to the skyline within the proposed project area. Potted plants have also been proposed in the design as part of exterior building beautification. There shall be a need for the finishing materials of the building to put environmental hue into perspective so as the building to blend well with the surrounding environment. It is anticipated that the building will contribute positively to environmental psychology within the proposed project area.

6.3. Negative Impacts

The project's negative impacts have been anticipated, and a brief description of the impact is given, as indicated in Table 6-2 below. The impacts shall be at different stages of the project, as highlighted in the project ESMP under Table 7-1.

Table 6-2: The Negative Impacts of the Project

NO.	IMPACT	DESCRIPTION
1.	Occupational Health and Safety (*accidents and Injuries*)	Working on a construction site comes with risks and accidents to the workers. The risk could be associated with falling objects, injury due to the nature of occupational activities (ergonomic), operating or movement of machines and equipment, and falling of workers from heights. The occupation health and safety risks are mainly anticipated at construction and decommissioning. But that does not rule out the operation phase, especially the workers conducting routine maintenance and cleaning on the office building as well as those working in the restuarant.
2.	Public health and safety (*accidents and Injuries*)	The public and any persons who visit the construction site can be at risk of injury from falling objects, accident involving construction vehicles, personal falls, or sharp objects on the ground. The risk shall be higher during the construction and decommissioning phase of the project. Though we shall have public safety issues during the operation of the building, it is anticipated to be low if control of speeding within the premises shall be adhered to.
	Visual/ aesthetic Impacts	The excavation activities and stockpile shall be the main source of visual/aesthetic value impact at the project site. Although the proposed building in itself could be a source of visual impact, the design of the office block has borrowed concepts from the natural

		environment to make the office block beautiful and pleasant to sight, which is anticipated to enhance the aesthetic value within the neighbourhood.
3.	Leakages and spills	The main source of leakages and spills anticipated at the 3 phases of the project, the construction, operation, and decommissioning phase, are from vehicles with mechanical issues. At construction and decommission, the leakage shall be from contractors equipment/vehicles, and during operation, it could be from vehicles using the parking on site. The design to take into consideration of such during operation.
4.	Noise and vibrations	According to the geophysical investigations of the proposed project site, the findings indicate that the site has a hard rock which shall require excavations. This will be the main source of noise and vibrations on-site during the construction phase. Other sources shall be the movement of construction vehicles to and from the site, general construction activities on-site, and noise from persons on site. The noise levels, in addition, are anticipated to be generated during the project operation phase, particularly in restaurants, the auditoriums, and vehicles moving in and out of the office building. Noise is also anticipated to be generated during decommissioning activities of the project. Several measures have been proposed in the project design to reduce the levels of noise, particularly during the operation of the project.
5.	Air pollution	Air quality shall be affected at the 3 phases of the project construction, operation, and decommissioning activities. Air quality shall be affected by exhaust fumes on site from the machines and moving of construction vehicles transporting materials from the site or to the site, from dust particles on-site during foundation excavation activities, during mixing of cement on site and movement of vehicles along the access roads. The access roads are anticipated to have mud from the construction site due to the movement of tipping trucks from site and this will be a source of dust particles despite the roads having cobra or tarmac. There could be an overflow of the soil as the trucks move, which could also be a source of dust particles on site. The parking shall be the main source of air quality degradation from the exhaust fumes from vehicles parking at the premise as well as the use of power backup generator. Decommissioning activities, notably demolition and

		transportation of the waste, could be sources of particulate matter on site in addition to the movement of the contractor's vehicles and machines undertaking the demolition activities.
6.	Solid Waste generation	The main sources of waste shall be debris from construction or decommissioning activities, and at operation, phase shall be from general consumption of materials by the occupants of the building and the guests that shall be visiting the office block or the auditorium. The volume of all excavated material projected to be created by the construction is **16,767m^3** while the expected volume for disposal - surplus excavated material is **7,625m^3**
7.	waste water generation	The main source of wastewater shall be during the operation phase of the project, with grey and black water being anticipated. Estimated waste water volume is presented in Annex XXI. Although the black water could be used for landscaping purposes on site, it was noted that detergents interfere with the proper operation of wastewater treatment plants. Kenya does not have apolicy for onsite wastewater treatment and this could be influenced by cultural perception towards black water.
8.	Fire Hazards	Fire hazard is anticipated mainly at the operation phase of the project, with electrical faults and arson being the main anticipated sources. The design of the proposed office building has provided fire management measures in the design. However, additional measures have been proposed in the mitigation measures.
9.	Increased Water consumption	Due to the relatively high number of occupants and anticipated users of the office building, it is anticipated that water use shall be of significance. The water shall be used in the washrooms, for landscaping, cleaning, and the restaurants proposed on the building and frequent personal cleaning due to the covid-19 impacts. it is anticipated that the consumption of water for the building will be high. The design has proposed two sources, borehole (with hydrogeological report attached) and supply from Nairobi City Water and Sewerage Company (letter ***Annex XVIII***). Despite this, additional measures in the project's design have been proposed to ensure efficient utilization of the resources on site such as push delay taps in washrooms, rain water harvesting and reduced indoor potable water use. This shall reduce pressures on the resources to ensure sustainability.

10.	Increased Energy consumption	Energy shall be critical for the users of the proposed office building either to run machines and equipment or for lighting purposes. Given the number of anticipated occupants, the demand for energy resources shall be high, and several measures have been provided for in the project's design to ensure efficient utilization of the resource. Additional measures have also been proposed in the mitigation measures
11.	Risk of Spread of HIV/AIDS	This project will employ more young workers at lower skill levels. This category of workers are prone to engage in high risk sexual activity. The consumption of cheap alcohol further decreases their ability to take safer sexual decisions. Increase in transactional sex from those coming into the area will also increase risk to contracting HIV/AIDS and other sexually transmitted infections.
12.	Gender-Based Violence (G BV)	The influx labor during construction may result in incidences of Gender-Based Violence on the job site or in the neighborhood. To counteract this, any new employee will be required to sign a code of behavior.
13.	Sexual Exploitation and Abuse	The increased labor force will potentially result in an increase in sexual harassment and exploitation incidences given participation of women in low-level/skills and trade near or in the project site.
14.	Child Labour	Cases of young adolescents below the age of 18 being employed are high.

Table 6-3: Potential Negative Impacts and risks and proposed prevention and Mitigation Measures for the construction Phase of Uvuvi House

NO.	ASPECT	IMPACT	RECEPTOR	RATE OF IMPACT	MITIGATION
1.	Occupational Health and Safety[11]	Injuries and accidents	Workers on site	**Substantial** The risk and potential impacts will be substantial if the workers and the contractor do not observe safety measures on-site.	• Contractor to develop a site safety action plan detailing safety equipment to be used, emergency procedures, restriction on site, frequency and personnel responsible for safety inspections and controls. • Ensure the safety of workers by putting first aid area and injury reporting mechanism. • The contractor will be required to have a WIBA insurance policy to cushion self and workers against loss of income in an accident on site. • Have an understanding with a nearby health facility for emergency cases on-site before decisions are made. • Provide appropriate personal protective equipment (PPE) to workers and training on appropriate use. (reflective jackets, helmets, face masks, gloves, safety boots, etc.) • Workers working at heights of the building should have the skills, experience, and knowledge to work at such heights. The

[11] The proposed mitigation measures serve as a guide and shall be customised based on the phase of the project (construction, operation and decommissioning) based on risk assessment.

NO.	ASPECT	IMPACT	RECEPTOR	RATE OF IMPACT	MITIGATION
					activities at height areas should be well planned and supervised through risk assessment procedures. • Use of safe scaffolding construction following OSHA[12] safety measures, installation of barricades, hand railing or other appropriate protection for workers working at heights above 2 meters and underground works below 1 meter • Site use plan and appropriate signage for different use of site area (material offloading areas, assemblage, free areas etc). • Creation of awareness and training of workers on site on safety and first aid skills. • Adequate provision of requisite sanitation facilities for human waste disposal for both male and female workers on site particularly during construction phase • The workers should receive the requisite training, especially on the operation of specialized machinery and equipment before use. • Provide clean drinking water for the workers.

[12] https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.451

NO.	ASPECT	IMPACT	RECEPTOR	RATE OF IMPACT	MITIGATION
					• Recording and reporting of all injuries that occur on-site in the incident register, corrective actions for their prevention and instigated as appropriate. • Hiring employees with proper qualifications for specialized and risky tasks. • Adhering to proper housekeeping at the contractors camp • Adherence to Covid-19 rules as provided by the ministry of health and the bank. The specific action to be captured in the contractor ESMP. • Training of workers on covid-19 rules and requirements. • Regular conducting of site hazard and risk assessment
2.	Public health and safety	injuries and accidents	area residents and pedestrians at the project site	**Minor** The impact is anticipated to be minor because the activities will be in an enclosed compound with restricted access by unauthorized	• Ensure the safety of residents by providing safety signs at strategic places around the access roads. • Cordoning off working sites to protect the public or unauthorized persons • use of signs and warnings on sites with high risks • Consider having road marshals, particularly during traffic peak hours, to reduce traffic

NO.	ASPECT	IMPACT	RECEPTOR	RATE OF IMPACT	MITIGATION
				persons	jams and accident rsiks for residents of the area guidance. • Materials to be brought on-site during off-peak traffic flow in the area. • All excavation works should be kept free of water at any given time • Reduce unnecessary speeding to control for accidents from the movement of pedestrians in the area.
3.	Visual/ aesthetic Impacts	Psychological nuisance	workers, residents and the general public	**Low** The impact is anticipated to be low with cordoning of the project site and use of silt screens.	• Cleaning of the site and organized locating of different construction materials. • Backfilling of soil cuttings • Landscaping of the project site • Cordoning of the construction site using appropriate screen nets
4.	Leakages and spills	contamination and pollution	soil, water, plants and air	**Moderate** It is anticipated that the contractor will be using vehicles which are compliant. The impact shall be temporal and of local scale	• In the event of hazardous waste leakage or spills, engage authorized waste handlers to dispose of contaminated soils. • Disposing of contaminated soils in cutting pit if volumes are low. • Use of NEMA licensed waste handlers to dispose of in licensed disposal areas. • Development of site-specific incident management or response plan.

NO.	ASPECT	IMPACT	RECEPTOR	RATE OF IMPACT	MITIGATION
5.	Noise and vibrations	Excessive noise and Vibration on site	workers, residents and pedestrians/public	**Low** The volume of workers on-site during foundation excavation is anticipated to be low. The impact shall be temporal and at the local scale.	• Use of an authorized garage or fuel station in the project area by the contractor or specific concrete and oil traps should be constructed at the contractor's yard. • The contractor to use equipment with low noise levels or fitted with silencers where appropriate. • Regular servicing of the equipment to reduce the possibility of noise from worn-out parts. • Informing the public about the possibility of unusual noise levels, particularly to residents and nearby offices, whenever working on such activities. • Ensure adherence to PPE by workers[13] working on excessive noise and vibration activities • Explore the viability of using soundproof materials along the site perimeter e.g. silt screens to reduce noise levels. • Minimize unnecessary hooting and speeding. • Acquire necessary licensing from NEMA for any excessive noise pollution at the site[14] , particularly while excavating the hard rock

[13] The measure should be according to the law (Occupation safety and health Act 2007, National Construction Act
[14] Based on the noise and excessive vibration pollution control regulations, 2009

NO.	ASPECT	IMPACT	RECEPTOR	RATE OF IMPACT	MITIGATION
6.	Air	air pollution	worker, area residents and the general public	**Minor** Most of the roads in the area are tarmacked though spillage of soil during transportation of waste and materials from the site is anticipated to contribute to the impact. The impact shall be temporal	on-site at the foundation phase of the project. • All project activities shall be restricted to day time and no activities should be conducted at night • Regular measurement of noise levels and devising control measures. • Sensitization and awareness creation as well as discouragement from unnecessary hooting among users of the premise and parking. • Regular servicing and maintenance of the soundproof system incorporated in the design of the building. • Consider vehicles to be used on-site to meet NEMA emission standards as required under NEMA air quality regulations. • Reduce unnecessary speeding and idling of engines • Consider exploring use of silt screen materials as an enclosure to the site or building to reduce blowing away of dust or cement dust from the site. • Adherence to proper uses of PPE by the workers especially those working on activities requiring mixing of cement. • Inform the public and residents about

NO.	ASPECT	IMPACT	RECEPTOR	RATE OF IMPACT	MITIGATION
				and at the local scale.	activities with possibility of unusual air pollutants • Suppress dust during pneumatic drilling of the foundation rock by ongoing water spraying and/or installing dust screen enclosures at the site • Consider wetting all the sand or soil materials being carried to or from the construction site. Where appropriate, cover the materials being transported to avoid being blown by the wind during transportation. • Wet all dust area or use of water to reduce dust emission including access roads.
7.	Waste	increased waste generation at construction site, contractors camp if any	Environment in general (public nuisance, soil, water and air)	**Moderate** Most of the the waste generated during construction shall be nonhazardous. The impact shall be temporal and of local scale	• Provision of mobile sanitation facilities for adequate human waste management[15] during the construction phase for workers and persons on site. • Promotion and adoption of the principles of waste avoidance, reduction, reuse and recycle. By avoiding unnecessary waste generation, use of debris for backfilling, use of waste materials on-site for other purposes where appropriate, or selling to recycling

[15] According to the Public Health Act Cap 242, 2012 and Occupation safety and Health Act 2007 requirements

NO.	ASPECT	IMPACT	RECEPTOR	RATE OF IMPACT	MITIGATION
					merchants. • Designate proper waste transfer stations onsite with controlled access. • Seek appropriate approvals from NEMA and County Government on management and Disposal of the waste[16]. *(this may include using authorized disposal sites, use of NEMA authorized waste pickers/transporters, acquiring dumping certificates and keeping proper records or use of certified vehicles to ferry waste)* • Consider formulating a site-specific waste management plan informed by waste characterization[17]. • Observing waste management standards proposed under NEMA waste management regulations 2006. *(with a particular focus on waste separation and management before disposal)* • Sensitization and awareness creation among the building occupants on the significance of waste separation and provide for waste

[16] Waste management and disposal procedures need to be in accordance to waste management standards proposed under NEMA waste management regulations of 2006 (legal notice 121).

[17] Waste characterization should consider waste from construction site and the contractors' camp if any or any other associated liquid waste from foundation excavation activities.

NO.	ASPECT	IMPACT	RECEPTOR	RATE OF IMPACT	MITIGATION
					sorting bins at the premises with clear labeling. • Provide for a waste transfer station at the premise • Sensitization and awareness to the building occupants on the significance of waste recycling and separation of waste. • Procurement of NEMA approved waste collectors for disposal of the waste
8.	waste water generation	contamination of ground water sources and Aesthetic impacts	Groundwater and aesthetic environment	**Moderate** The waste water generated shall be managed through an existing municipal sewer system present in project area. The impact is temporal and of local scale Fire hazards remains a reality in the event of electrical faults or deliberate arson activities	• Regular cleaning of the wastewater drainage system • Regular and proper maintenance of the drainage system • Prompt response to any reported blockage and leakages in the drainage system • Regular sensitization, awareness, and deterrent of occupants on discharging or emptying any chemical solutions or oils to the sewer or grey water drainage systems. • The parking must have special oil trapping chambers to avoid leaking oil mixing into drainage system in an accident. • Any leaking vehicles should be brought to the attention of owners and, where applicable, taken to the nearest garage.

NO.	ASPECT	IMPACT	RECEPTOR	RATE OF IMPACT	MITIGATION
9.	HIV/AIDS prevalence	Increased cases of HIV/AIDS in view of labour immigrants	Surrounding community	**Low** awareness and sensitization among workers is anticipated to reduce engaging in reckless sexual behavior.	The Bill of Quantities will have a budget for HIV/AIDS prevention and awareness campaign; as well as HIV/AIDS testing facilities and clinic at the site. Improved access to condoms and information in the prevention of STIs and HIV/AIDS
10.	GBV/SEA risks /Child labour	With increase influx of youthful labour, there is expected increase in the number of GBV cases and Sexual Exploitation and Abuse cases.	Local communities, vulnerable women and young girls	**Low** There is a provision for all workers to sign the code of conduct before being engaged for any work at the site. And the measures contained in the code of conduct is anticipated to deter incidence of GBV/SEA	The Bill of Quantities will have a budget for related GBV/SEA/Child labour prevention training of all workers at the construction site and signing of code of conduct

Table 6-4: Potential Negative Impacts and Risks and Proposed Mitigation Measures for the Operation Phase

NO.	ASPECT	IMPACT	RATE OF IMPACT	MITIGATION MEASURES
1.	Solid waste generation	The operation of the proposed building is anticipated to be a source of waste from offices, repair and general maintance, lawn keeping and organic waste from restaurants operating in the premises.	**Moderate** The waste generated during construction, operation, and decommissioning shall be nonhazardous. The impact shall be temporal and of local scale	• Sensitization and awareness creation among the building occupants on the significance of waste separation as well as provide for waste sorting bins at the premises with clear labeling. • Provide for a waste transfer station at the premise • Sensitization and awareness to the building occupants on the significance of waste recycling and separation of waste. • Procurement of NEMA approved waste collectors for disposal of the waste
2.	waste water generation	The proposed Uvuvi house building is anticipated to generate significant amount of waste water from the toilets and hand washing areas as well as from the proposed eateries. If the waste water	**Moderate** The waste water generated shall be managed through an existing municipal sewer system present in project area. The impact is temporal and of local scale	• Regular sensitization and awareness to building occupants as well as discouragement on releasing detergents or other chemical solutions in black water system. • Regular cleaning of the wastewater drainage system • Regular and proper maintenance of the drainage system • Prompt response to any reported blockage and leakages • Sensitization and awareness of occupants from discharging or emptying any chemical solutions or oils to the sewer system. • The parking to have special oil trapping chambers.

		drainage sytem is nit well managed, it will be a source of nuisance and pollution to the environment		• Any leaking vehicles should be brought to the owners' attention and, where applicable, taken to the nearest garage.
3.	Fire Hazards[18]	The fault in electrical appliances, fuel spills for use in the back up generator, cooking fuel in eateries kitchens and deliberate arson activities poses fire risks to the proposed building during operation phase.	**Low** Fire hazards remains a reality in the event of electrical faults or deliberate arson activities	• Provide for fire risk and response signage where the information is short and clear • Regular fire drills for the building occupants • Regular awareness and sensitization on fire safety measures and response to the building occupants • Clear fire incidents reporting procedures and response. Ensure regular provision of operational emergency reporting contacts. • Regular servicing and maintenance of the fire risk detection and management system. • Ensuring availability of adequate water resources at the premise at all times. • Locating all the fire risk facilities such as eatery areas to relatively lower floors for easy of putting of the fires in the event of one given that Kenya do not have specialized fire equipment. • Avoid smoking near generator rooms and fuel storage areas. • High ventilations of generator and and fuel rooms. • Regular servicing of the genartor to avoid spillage and

[18] The proposed fire safety measures under the design were not included here since they are already part of what shall be done

				tightening any leaking areas or replaced. • Immediate cleaning up of fuel spills and disposing of fuel-soaked absorbent materials. • Entering into an understanding with fire risk response and management companies in the event of a fire outbreak beyond internal management capacity. (either private companies G4S or Nairobi Fire department)
4.	Water consumption	Increased water demand on NCWSC supplies and increased demand on extraction of borehole water	**Low** The office building shall have alternative sources of water supply including borehole on site and NCWSC supply	• Sensitization and awareness creation among occupants on significance of water conservation measures. • Regular maintenance and prompt response to leakage in the water system on the building. • Sensitization and awareness creation among the maintenance team to continue using water conservation equipment throughout the life of the building. • Extraction of the water according to WRA permit conditions and regular monitoring of ground water levels. • Regular monitoring of ground water quality to avoid salty water intrution
5.	Energy consumption	Increased power demand	**Low** The design of the building has anticipated the use of renewable energy and energy-saving electrical appliances	• Sensitization and awareness creation among occupants on the significance of energy conservation measures • Sensitization and awareness creation among the maintenance team to continue observing the use of energy-saving electrical appliances on the building.
6.	Noise Pollution	Nuisance.	**Low**	• Sensitization and awareness creation as well as

		The auditorium shall be part of noise generation on the proposed building. Other sources of noise shall be the running of the backup generators, movement and hooting of vehicles while on the premises and the cumulative impact of general conversation from the occupants of the building.	The use of sound proof materials within the auditorium is anticipated to reduce the amount of noise released beyond the confines of the audotorium.	discouragement from unnecessary hooting among users of the premise and parking. • Use of mufflers on the generator • Use of signage of maintaining silence while at Uvuvi house office premises. • Procuring of generators with low noise specifications. • Regular servicing and maintenance of the soundproof system incorporated into the building design • Separation of access to public facilities including the auditorium and restaurants from the office premises.
7.	Occupation health hazards	Injury and accidents. The proposed building and the associated facilities shall consist of routine maintenance and repair as well as occasional cleaning which is anticipated	**Low** proper observance of proposed safety measures is anticipated to reduce the incidences of accidents and injuries to wokers.	• Provide personal protective equipment to operation and maintenance workers. • Recording all injuries that occur on-site to workers while doing their daily duties in the incident register, corrective actions for their prevention should be initiated as appropriate. • Cordoning off working sites to protect the public or unauthorized persons during repair and maintenance of the different utility systems on site • Creation of awareness and training of workers on site on safety and first aid skills.

		to pose occupational health and safety issues. However with implementation of proper mitigations the risks shall be reduced.		• Hiring employees with proper qualifications for specialized and risky tasks during operation and maintenance of the various utility systems. • Adherence to Covid-19 rules as provided by the ministry of health and the bank while conducting daily duties. • Training of workers on covid-19 rules and requirements.
8.	Public health hazards	Routine maintenance, movement of vehicles within the premise as well as fire risks may pose a risk to the public who shall use the building as clients or for any other reasons.	**Low**	• Limit on speed while within the premise • separation of vehicle and pedestrian entry points • provision for alighting and boarding stations for workers or guests using public transport • using signage during cleaning, maintenance, or repair to warn the public • Easily accessible fire risk information to the public visiting the premise • Use of bumps to slow vehicles • Use of zebra crossing signage
9.	Emergency power generators operation	Fuel spills and hazardous mateinance wastes		Require that generators that supply emergency power in the event of a power outage have a secondary containment unit that safely contains leaks and spills that occur during generator usage
10.	Generation of increased vehicular traffic	Traffic inconveniences	**Moderate**	• Construct acceleration and deceleration lane for ease of traffic as per traffic impact assessment plan. Detailed report on Traffic Impact Assessment attached for Annex X.

7. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

7.1. Chapter Overview

The chapter captures the environmental and social management measures for the anticipated negative impacts. The ESMP captures the impacts, receptor, proposed mitigation measures, institution responsible for the mitigation, frequency, and budget. The preparation of the plan was informed and guided by the mitigation measures that were anticipated in the Environmental and Social Management Framework 2019 for the KEMFSED project.

7.2. Proposed Environment and Social Management Measures

The objectives of the proposed environmental and social management plan is to ensure smooth implementation of environmental protection measures, mitigate adverse impacts and ensure environmental protection activities are carried out efficiently at the project site.
The specific objectives include but are not limited to:

- Ensuring environmental health and safety within the living environment and *minimizing environmental risk* during the design, construction, and operation phases.
- Incorporating environmental principles into development planning, design, construction, and operation to enhance environmental management and protection as well as promote sustainable development.
- To provide mitigation measures against all identified and potential negative impacts resulting from the activities of the proposed development
- Reduce contamination
- Apply climate change adaptation measures
- Apply green building construction measures
- Apply measures required by Kenya regulations
- Apply measures required by the World Bank Safeguard Policies applied for KEMFSED and this project
- Creating, facilitating, and supporting environmental awareness within the project site and the neighbourhood to inculcate environmental philosophy, ethics and principles among actors and concerned parties in order to achieve sustained environmental quality management.
- To assign duties to various actors in the management plan for purposes of enhancing accountability in this project.
- To provide a logical framework for environmental management and monitoring.
- To provide a reference base for future environmental audits of the Commercial development.

Various potential adverse environmental impacts associated with the proposed project have been identified, and an ESMP was developed to guide in mitigating the negative impacts. However, the implementation of some of the ESMP actions will require a response beyond the project level. The project implementing agency, the contractor, and the project engineer are required to identify the actions and coordinate the various stakeholders appropriately. It is upon the project proponent department of fisheries through KEMFSED NCPU, the contractor, and the environmental enforcement agencies to ensure that the proposals are adhered to. Table 7-1 below shows the anticipated impacts, proposed mitigation measures, the institutions responsible, the

period within the project life cycle when the action is to be undertaken, and the estimated possible cost of the action. Although the cost of ESMP implementation has been provided, future dynamics during project operation and decommissioning were a limiting factor and could not be well envisioned at this point in time. Therefore measures have been proposed to capture the realistic costs during project operation and decommissioning phases.

Table 7-1: Environmental and Social Management Plan (ESMP) for Construction Phase

NO.	ASPECT	IMPACT	RECEPTOR	MITIGATION MEASURES	Goal	Responsibility	Frequency	Cost (KES)
PROJECT IMPLEMENTATION PHASE								
1.	Occupational Health and Safety	Injuries and accidents	Workers on site	• Contractor to develop a site safety action plan detailing safety equipment to be used, emergency procedures, restriction on site, frequency, and personnel responsible for safety inspections and controls. • Ensure the safety of the construction workers by putting first aid area and injury reporting mechanism • The contractor should consider having WIBA insurance policy to cushion self and workers against loss of income in an accident on site. • Have an understanding with a nearby health facility for emergency cases on-site before decisions are made. • Provide appropriate personal protective equipment (PPE) to workers and training on appropriate use. *(reflective jackets, helmets, face masks, gloves, safety boots, etc.)* • Workers working at heights of the	To ensure the safety of workers and persons on site	contractor and supervising engineer	daily basis	4M

		building should have the skills, experience, and knowledge to work at such heights. The activities at height areas should be well planned and supervised through risk assessment procedures. • Use of non-lead paints and asbestos materials to assure public health concerns to workers are assured • Use of scaffolding, railing, or other appropriate protection for workers working at heights • Site use plan and appropriate signage for different use of site area *(material offloading areas, assemblage, free areas etc)*. • Creation of awareness and training of workers on site on safety and first aid skills. • Adequate provision of requisite sanitation facilities for human waste disposal for both male and female workers on site • The workers should receive the requisite training, especially on the operation of specialized machinery and equipment. • Provide clean drinking water for the workers.

				• No worker should be allowed on site under influence of any form of drugs or alcohol. • Recording of all injuries that occur on-site in the incident register, corrective actions for their prevention and instigated as appropriate. • Hiring employees with proper qualifications for specialized and risky tasks. • Adhering to proper housekeeping at the contractors camp • Adherence to Covid-19 rules as provided by the ministry of health and the bank. The specific action to be captured in the contractor ESMP. • Training of workers on covid-19 rules and requirements.				
2.	Public health and safety	injuries and accidents	area residents and pedestrians at the project site	• Ensure the safety of residents by providing safety signs at strategic places around the access roads. • hording off working sites to protect the public or unauthorized persons • use of signs and warnings on sites with high risks • Consider having road marshals, particularly during traffic peak hours, to reduce traffic jams for residents of the	To ensure public safety at site area	contractor and the supervising engineer	daily	2M

				area guidance. • Materials to be brought on-site during off-peak traffic flow in the area. • Reduce unnecessary speeding to control for accidents from the movement of pedestrians in the area. • Prior creation of awareness and sesntization of the public and the residents of any activities that are likely to have an impact within adequate time 2 weeks before commencement.				
3.	Visual / aesthetic Impacts	Psychological nuisance	workers, residents, and the general public	• Cleaning of the site and organized locating of different construction materials. • Backfilling of soil cuttings • Landscaping of the project site • Cordoning of the construction site using appropriate screening materials	To reduce psychological impacts to public, residents, and workers on site	contractor and the supervising engineer	daily	part of construction cost
4.	Leakages and spills	contamination and pollution	soil, water, plants, and air	• In the event of hazardous waste leakage or spills, engage authorized waste handlers to dispose of contaminated soils. • Disposing of contaminated soils in cutting pit if volumes are low.	to avoid any contamination and pollution on-site	Contractor and Supervising engineer	often as required	

				• Use of NEMA licensed waste handlers to dispose of in licensed disposal areas. • Development of site-specific incident management or response plan. • Use of an authorized garage or fuel station in the project area by the contractor or specific concrete and oil traps should be constructed at the contractor's yard.	or at the contactor's camp			
5.	Noise and vibrations	Excessive noise and Vibration on site	workers, residents, and pedestrians/ public	• The contractor to use equipment with low noise levels or fitted with silencers where appropriate. • Regular servicing of the equipment to reduce the possibility of noise from worn-out parts. • Informing the public about the possibility of unusual noise levels, particularly to residents and nearby offices, whenever working on such activities. • Ensure adherence to PPE by workers[19] working on excessive noise and vibration activities • Explore the viability of using soundproof materials along the site perimeter, e.g., silt screens, to reduce noise levels.	to ensure Workers and public safety	The contractor and the supervising engineer	regularly (weekly)	2M

[19] The measure should be according to the law (Occupation safety and health Act 2007, National Construction Act

				• Minimize unnecessary hooting and speeding by construction vehicles. • Acquire necessary licensing from NEMA for any excessive noise pollution at the site[20] , particularly while excavating the hard rock on-site at the foundation phase of the project. • Restricting noisy activities to be during the day and no noisy activities should be conducted on site at night. • Regular measurement of noise levels and devising control measures.				
6.	Air	air pollution	worker, area residents, and the general public	• Consider vehicles to be used on-site to meet NEMA emission standards as required under NEMA air quality regulations. • Reduce unnecessary speeding or idling of construction vehicles • Use of non-lead paints during construction. Avoid using asbestos materials during construction. • Consider exploring the use of silt screen materials as an enclosure to the site or building to reduce blowing away of dust or cement dust from the site. • Adherence to proper uses of PPE by the workers, especially those working on	to ensure workers and public safety	contractor and Project supervising engineer	Regularly	2M

[20] Based on the noise and excessive vibration pollution control regulations, 2009

				activities requiring mixing of cement. • Inform the public and residents about activities with the possibility of unusual air pollutants • Suppress dust during pneumatic drilling of the foundation rocky places by ongoing water spraying and/or installing dust screen enclosures at the site • Consider wetting all the sand or soil materials being carried to or from the construction site. Where appropriate, cover the materials being transported to avoid being blown by the wind during transportation. • Wet all dust areas or use water to reduce dust emission, including on access roads.				
7.	Waste	increased waste generation at project site and contractors camp if any	The environment in general (public nuisance, soil, water and air)	• Provision of mobile sanitation facilities for adequate human waste management[21] during the construction phase for workers and persons on site. • Promotion and adoption of the principles of waste avoidance, reduction, reuse and recycle. Through avoiding unnecessary generation of waste, use of debris for backfilling, use of waste materials on-site for other purposes	to ensure waste is managed properly	The contractor and the supervising engineer	regularly (weekly)	2M

[21] According to the Public Health Act Cap 242, 2012 and Occupation safety and Health Act 2007 requirements

			where appropriate, or selling to recycling merchants. • Designate proper waste transfer stations onsite with controlled access. • Seek appropriate approvals from NEMA and County Government on management and Disposal of the waste[22].*(this may include using authorized disposal sites, use of NEMA authorized waste pickers/transporters, acquiring dumping certificates, and keeping proper records or use of authorized vehicles to ferry waste)* • Consider formulating a site-specific waste management plan informed by waste characterization[23]. • Observing waste management standards proposed under NEMA waste management regulations 2006. *(with a particular focus on waste separation and management before disposal)*	
8.	Covid-19 infections	community and Persons on site	• The Contractors will develop standard operating procedures (SOPs) for managing the spread of Covid-19 during project execution and submit them for	2M

[22] Waste management and disposal procedures need to be in accordance to waste management standards proposed under NEMA waste management regulations of 2006 (legal notice 121).

[23] Waste characterization should consider waste from construction site and the contractors' camp if any or any other associated liquid waste from foundation excavation activities.

				the approval of the Supervision Engineer and the Client, before mobilizing to site. The SOPs shall be in line with the World Bank guidance on COVID-19, Ministry of Health Directives and site-specific project conditions; • Mandatory provision and use of appropriate Personal Protective Equipment (PPE) shall be required for all project personnel including workers and visitors; • Avoid concentrating more than 15 workers at one location. Where two or more persons are gathered, maintain social distancing of at least 1.5 meters; • Install hand washing facilities with adequate running water and soap, or sanitizing facilities at entrance to work sites including consultation venues and meetings and ensure they are used; • Ensure routine sanitization of shared social facilities and other communal places routinely including wiping of workstations, door knobs, hand rails etc.				
9.	HIV/AIDS	Increased cases of STI and	Surrounding community	• Promote HIV/AIDS Prevention messaging • Access to safe sex (condoms-Male and	HIV free site	Contractor	Daily	1M

		HIV/AIDS in view of labour immigrants		female) • Install HIV testing services at the construction site • Support infected workers with ARVs • Peer counseling services at the site				
10.	GBV/ SEA	With increase influx of youthful labour, there is expected increase in the number of GBV cases and Sexual Exploitation and Abuse cases.	Local communities, vulnerable women and young girls	• Ensure clear human resources policy at the site against sexual harassment that is aligned with national law • Integrate provisions related to sexual harassment in the employee COC • Ensure appointed human resources personnel to manage reports of sexual harassment according to policy • The Contractor shall require his employees, sub-contractors, sub-consultants, and any personnel thereof engaged in construction works to individually sign and comply with a Code of Conduct with specific provisions on protection from sexual exploitation and abuse	GBV/SEA free site	Contractor	Regularly	1M
11.	Grievance mgt		Community	• Establish community grievance committees at the site • Ensure staff grievance structures exist	Grievance free	Contractor	Regularly	4M

Table 7-2: Environmental and Social Management Plan for Operation Phase

OPERATION PHASE								
NO.	**ASPECT**	**IMPACT**	**RECEPTOR**	**MITIGATION MEASURES**	**Goal**	**Responsibility**	**Frequency**	**Cost**
1.	Solid waste generation	contamination and littering	public nuisance, soil, water and air	• Sensitization and awareness creation among the building occupants on the significance of waste separation as well as provide for waste sorting bins at the premises with clear labeling. • Provide for a waste transfer station at the premise • Sensitization and awareness creation among the building occupants on the significance of waste recycling. • Procurement of NMS and NEMA approved waste collectors/handler to dispose of waste to approved dumping sites from Uvuvi house building.	to ensure waste is managed properly	SDFA &BE	Regularly	To be determined under operation and maintenance costs
2.	air quality	climate change and air quality degradation	maintenance workers, building occupants and atmosphere through green house	• To install catalytic devices on the power backup generator to ensure complete burning of waste gases, • Use of clean petroleum that is low in sulphur, lead or other fuel additives, • Proper servicing of generator and other equipment using fuel, • Plant more vegetation as part of	to reduce the impact of vehicular and generato	SDFA &BE	Regularly	To be determined under operation and maintenance

			gases	beautification and landscaping for carbon sequestration,	r exhaust fumes			costs
3.	waste water generation	increased waste water generation during operation	public nuisance, soil and water	• Regular sensitization and awareness to building occupants as well as discouragement on releasing detergents or other chemical solutions in black water system. • Regular cleaning of the wastewater drainage system • Regular and proper maintenance of the drainage system • Prompt response to any reported blockage and leakages • Sensitization and awareness of occupants from discharging or emptying any chemical solutions or oils to the sewer system. • The parking to have special oil trapping chambers. • Any leaking vehicles should be brought to the owners' attention and, where applicable, taken to the nearest garage.	to ensure waste is managed properly	SDFA &BE	Regularly	To be determined under operation and maintenance costs
4.	Fire Hazards[24]	destruction of property	building occupants and Uvuvi	• Provide for fire risk and response signage where the information is short and clear	to ensure the	SDFA &BE	Regularly	To be determined

[24] The proposed fire safety measures under the design were not included here since they are already part of what shall be done

		in the building and injury to occupants	house asset management unit	• Regular fire drills for the building occupants • Regular awareness and sensitization on fire safety measures and response to the building occupants • Clear fire incidents reporting procedures and response. Ensure regular provision of operational emergency reporting contacts. • Regular servicing and maintenance of the fire risk detection and management system. • Ensuring availability of adequate water resources at the premise at all times. • Entering into an understanding with fire risk response and management companies in the event of a fire outbreak beyond internal management capacity. (either private companies G4S or Nairobi Fire department) • Detering smoking near backup generator room or fuel storage areas.	building is protected from fire hazards			under operation and maintenance costs
5.	Water consumption	pressure on existing water resources	Nairobi water and sewerage company and other water users	• Sensitization and awareness creation among occupants on significance of water conservation measures. • Regular maintenance and prompt response to leakage in the water system on the building.	to ensure efficient and sustainable	SDFA &BE and NCWSC	Regularly	To be determined under operation and

				• Ther abstraction of borehole water to adhere to permit conditions. • Regular monitoring of of ground water table and quality for the proposed borehole • Sensitization and awareness creation among the maintenance team to continue using water conservation equipment throughout the life of the building.	consumption of water resources			maintenance costs
6.	Energy consumption	contribution to carbon generation and pressure on energy resources	energy resources and climate change	• Sensitization and awareness creation among occupants on the significance of energy conservation measures • Sensitization and awareness creation among the maintenance team to continue observing the use of energy-saving electrical appliances on the building. • Proper and regular maintenance of the green energy appliances and equipment	to ensure efficient and sustainable consumption of energy resources	SDF&BE	Regularly	To be determined under operation and maintenance costs
7.	Noise Pollution	Excessive noise and Vibration on site	residents and occupants of the building	• Sensitization and awareness creation as well as discouragement from unnecessary hooting among users of the premise and parking. • Regular serving and maintenance of the soundproof system incorporated into the building design.	to ensure the safety of the public, residents, and	SDFA&BE	Regularly	To be determined under operation and maintenance

				• Regular servicing of the emergency power generator • Use of silencer/muffles on the generator	occupants of the office building		costs
8.	Occupation health hazards	Injuries and accidents	Maintainance workers	• Ensure compliance to Occupational Safety and Health Act Cap. 514 and it's Subsidiary Legislations standards. • Provide personal protective equipment to operation and maintenance workers. • Recording all injuries that occur on-site to workers while doing their daily duties in the incident register, corrective actions for their prevention should be initiated as appropriate. • Cordoning off working sites to protect the public or unauthorized persons during repair and maintenance of the different utility systems on site • Creation of awareness and training of workers on site on safety and first aid skills. • Hiring employees with proper qualifications for specialized and risky tasks during operation and maintenance of the various utility systems. • Adherence to Covid-19 rules as provided by the ministry of health and the bank while conducting daily duties.	Ensure the safety of workers who will be conducting routine repair and maintenances activities.	SDFA &BE	To be determined under operation and maintenance costs

				• Training of workers on covid-19 rules and requirements.				
9.	Public health hazards	Injury and accidents	clients of SDFA&BE	• Limit on speed while within the premise • separation of vehicle and pedestrian entry points • provision for alighting and boarding stations for workers or guests using public transport • using signage during cleaning, maintenance, or repair to warn the public • Easily accessible fire risk information to the public visiting the premise	ensure protection and safety of the public who visit the office building	SDFA &BE		To be determined under operation and maintenance costs
10.	leakages and spils in generator and fuel storage rooms	fire incidence and pollution	storm drainage, soils and water sources	• Cleaning the backup generator regularly and checking for leaking parts which if spotted should be tightened if loose or replaced immediately • Regular servicing of the generator to avoid spillage • Cleaning up fuel spills immediately it occurs and disposing off fuel-soaked absorbent materials • Installing of oil trap chambers in generator and fuel storage room.	to deter oil and fuel spillage	SDFA &BE	Regularly	To be determined under operation and maintenance costs

Table 7-3: Proposed mitigation measures at project Decosmissioning phase

DECOMMISSIONING PHASE

1.	Health and safety issues	Injury and accidents	Workers	• Preparation of project decommissioning plan. • Ensure the safety of the decommissioning workers by putting first aid area and injury reporting mechanism • The contractor should consider having a WIBA insurance policy to cushion self and workers against loss of income in an accident on site. • Provide personal protective equipment to workers. • Recording all injuries that occur on site in the incident register, corrective actions for their prevention should be instigated as appropriate. • Cordoning off demolition sites to protect the public or unauthorized persons • use of signs and warnings on sites with high risks • Creation of awareness and training of workers on-site on safety and first aid skills. • Hiring employees with proper qualifications for specialized and risky tasks. • Ensure compliance to Occupational Safety and Health Act Cap. 514 and it's	to ensure workers and public safety	SDFA &BEand contract or	Daily	To be determined under the decommissioning plan

				Subsidiary Legislations.				
2.	Noise and vibrations	psychological nuisance	workers, residents and neighbouring offices	• Adequate use of PPE by the workers e.g. earplugs • Working on and restricting noisy activities during the day • Reducing the duration of exposure of workers to high occupational noise levels during demolition. • Acquisition of permits/Licenses for any activity with high noise levels eg drilling of walls or slabs for demolition. • Using models of machines and equipment with acceptable noise levels. • workers using drilling or handheld pneumatic equipment to be provided with specialized anti-vibrating gloves, • Switching off vehicles and machines when not in use, • Avoiding unnecessary hooting, • Warnings to be issued to the locals in case of any unusual noise levels, • Ensure that NEMA noise and Vibration standards are observed in all project activities.	to ensure workers and public safety	SDFA &BEand contractor	Daily	To be determined under the decommissioning plan
3.	Waste generation	littering environment and contamin	water, air, soils, environment, and local	• Proper disposal of any hazards waste from the decommissioning site • The contractor to develop site-specific incident management or response plan	to ensure waste is manage	SDFA &BEand contract	Weekly	To be determined under

		ation	residents	in the evident of hazardous waste contamination. *The future use of the building shall determine this* • Preparation of waste management plan to guide waste management and disposal activities of all debris from demolition activities. • Disposal of debris to NEMA authorized damping sites • Use of certified vehicles or NEMA licensed waste disposal firms for waste management and disposal	d properly	or		the decommissioning plan
4.	air	contamination of air	air, local communities, and workers	• Workers to use masks when working in dusty conditions. • Use all means possible to suppress dust if considered to be a menace during demolishing of obsolete walls or structures on-site	to ensure workers and public safety	SDFA &BE and contractor	Daily	To be determined under the decommissioning plan
5.	Leakages and spills	contamination and pollution	soil, water, plants, and air	• In the event of hazardous waste leakage or spills, engage authorized waste handlers to dispose of contaminated soils. • Disposing of contaminated soils in cutting pit if volumes are low. • Use of NEMA licensed waste handlers	to reduce contamination on site	SDFA &BE and contractor	regularly	To be determined under the decommissioning

		to dispose of in licensed disposal sites. • Development of site-specific incident management or response plan. • Use of an authorized garage or fuel station in the project area by the contractor or specific concrete and oil traps should be constructed at the contractor's yard.	plan

8. ENVIRONMENTAL AND SOCIAL MONITORING PLAN (EMOP)

8.1. Chapter Overview

This chapter captures the environmental and social monitoring indicators for the anticipated negative impacts. The preparation of the plan was informed and guided by the indicators that were anticipated in the KEMFSED project Environmental and Social Management Framework 2019.

8.2. Proposed Monitoring Measures

Implementation of the proposed construction of the Uvuvi house office building is likely to result in varying environmental impacts at all phases of the project, requiring supervision and monitoring. Therefore a monitoring plan was prepared to provide delivery mechanisms that address the adverse environmental impacts during the project life cycle. The proposed monitoring plan shall ensure standards of good practices are adopted and ensures compliance. The monitoring plan is intended to assist in:

i. Ensuring that mitigation measures proposed in the ESMP have actually been adopted and implemented to impacts of the proposed works.
ii. Providing a means whereby any impacts that were subject to uncertainty at the time of preparation of the environmental ESMP or unforeseen can be identified and provide a basis for formulating appropriate additional impact control measures.
iii. Assist in detecting the development of any unwanted environmental and social situation, and thus, provides opportunities for adopting appropriate control measures during the project lifecycle.
iv. Defining the responsibilities of the project management stakeholders and provides means of effective communication and sharing of environmental and social issues.
v. Defining monitoring mechanisms and identify monitoring parameters.
vi. Evaluate the performance and effectiveness of mitigation measures proposed in the ESMP and suggest improvements in the management plan, if required. It will also serve to improve the planning and execution of future similar projects.
vii. Identifying training requirement at various levels whenever needs arise.

The environmental team proposes impact items, indicated in Table 8-1: Environmental and Social Monitoring Plan (EMoP) as significant for monitoring by the various stakeholders, especially the impacts identified at project construction and decommissioning due to the obvious project management structure as indicated in Table 7-1. The expert team could not determine the realistic cost of some proposed monitoring activities due to the associated hidden costs. However, additional measures have been proposed to develop a more accurate cost during the implementation stage. It is upon the project proponent (SDFA&BE), the contractor, and the environmental enforcement agencies to ensure that the proposals are adhered to. For the purpose of consistency, the project proponent at the time of implementation should consider seeking the advice of the author of the EMoP

Table 8-1: Environmental and Social Monitoring Plan (EMoP)

No.	PARAMETER/ ACTIVITY	LOCATION	MEANS OF MONITORING	FREQUENCY	RESPONSIBLE AGENCY	
					IMPLEMENTED BY	SUPERVISED BY
	Occupational Health and Safety	construction site	Visual inspection of first aid area, injury reporting mechanism, WIBA insurance policy, evidence of understanding with health facility, appropriate use and wearing of PPE, safety measures to workers working at heights, training programs for workers, health and safety plan prepared for site, clean drinking watering points, housekeeping on site and at the contractors camp.	Daily	contractor	Supervising consultant
	covid-19 management	construction site and at operation phase	appointing covid-19 champion or marshal, Regular fumigation of common area and shared tools, sanitizing and hand washing area and equipments, isolation area, covid-19 PPE, visual social distance	weekly	contractor and SDFA&BE	Supervising consultant Ministry of Health
	Public health and safety	Areas surrounding the construction	visual inspection of site for; safety signs at strategic places, cordoned off working sites to protect the public or unauthorized	monthly	contractor	Supervising consultant

		site.	persons, usage of signs and warnings on sites with high risks, road marshals and observed,			
	Visual/ aesthetic Impacts	construction site and project operation	Visual inspection of cleanness of the site, organized locating of different construction materials, backfilling of soil cuttings, Landscaping of the project site and Cordoning of the construction site using appropriate screen nets	quarterly	contractor and SDFA&BE	Supervising consultant
	Leakages and spills	contractor yard, construction site and parking	Visual inspection of hazardous waste leakage or spills, records of authorized waste handlers used to dispose of contaminated soils, records of cutting pits for disposals, and records of NEMA licensed waste handlers used to dispose contaminated soils. Developed site-specific incident management or response plan. Record of authorized garage or fuel station and oil traps constructed at the contractor's yard and parking area.	monthly	contractor	Supervising consultant
	Noise and vibrations	construction site	Use equipment with low noise levels or fitted with mufflers. Visual inspection of site for use of PPE, use of sound proof	weekly	contractor	Supervising consultant

			materials, notices to public on noisy activities, Minimize unnecessary hooting and speeding, necessary licensing from NEMA, restricting noisy activities day time, no blasting shall be allowed on site and regular measurement of noise levels.			
	Air quality	construction site and along construction vehicle movement routes	Physical inspection of vehicles records to ensure meets emission requirements. Visual inspection of site for silt screens, Proper use of PPE and suppressing dust and wetting of sand or soil materials during transportations.	daily	contractor	Supervising consultant
	Waste generation	construction site and contractors camp	Visual inspection of; sanitation facilities for human waste management, practicing of waste avoidance, reduction, reuse and recycle, designated waste transfer stations onsite, documented approved waste handlers and dumping sit, presence and compliance to implementations of site-specific waste management plan.	Monthly	contractor	Supervising consultant
	waste water	operation site	Physical inspections of cleanness of wastewater drainage system,	quarterly	SDFA&BE	

	generation		maintenance of storm water drainage system, unblocking blocked and mended leakages in the drainage system, sensitization, awareness, and deterrent of discharging or emptying chemical solutions or oils to sewer or grey water drainage systems, special oil trapping chambers at parking garages.			
	Fire Hazards	operation site	as built fire management plan, fire drills and emergency plans of how vulnerabilities are experienced by different genders. Ensure that fire or disaster preparedness takes into account women's and men's distinct roles, responsibilities, and resource access in order to limit potential threats, as well as how they will cope with and recover from the emergencies.		supervising consultant	SDFA&BE
	HIV/AIDS prevalence	Construction site	No. of Condom dispensers around the site for men and women No. of HIV/AIDS prevention messaging at the site tailored for specials needs of men and women HIV/AID Training reports for	Weekly	Supervising consultant	SDFA&BE

		staff disaggregated between men and women HIV/AIDS health management services for men and women at the site. VCT testing and counselling services at the site for men and women AIDS management services at the site for men and women			
Grievance Redress Procedures	Construction site	Grievance Policy at the site No. of grievance recorded at the site No. of grievance addressed at the site No. of grievances escalated to higher level	Weekly	Contractors	SDFA&BL
Gender Mainstreaming at the construction site	Construction site	Gender Inclusion policy at the site No. of women employed at any one time The ration of men to female staff at the site GBV cases at the site	Weekly	Contractor	Supervision consultant
GBV/SEA risks /Child labour	Construction site	GBV/SEA Policy at the construction site Sample code of conduct signed by staff No. of staff trained on GBV/SEA/ Child Labour Monitoring framework	Monthly	Supervising Consultant	SDFA&BE

	Labour and employment-related issues	construction site and contractors office	Physical counts and inspection of records on; No. of locals employed on the project from the employment records. No. of Grievance recorded from employees and how they were addressed	weekly	contractor	Supervising consultant

9. PROJECT DECOMMISSIONING

9.1. Overview

This chapter is not a decommissioning and site rehabilitation plan for the proposed construction of the Uvuvi house office building site in itself, but it highlights the need and significance of such a plan. Preparation of such a decommissioning plan at this point is limited by uncertainty in future project dynamics within the Area of interest (AOI). The chapter highlights the legal requirements for the process, purpose, significance, circumstances under which rehabilitation may be undertaken, and approaches to the process. It is appreciated in the chapter that decommissioning of developed projects and site rehabilitation may pose challenges.

9.2. Legal Requirement for Rehabilitation

The National Environment and Coordination Act CAP 387 in articles 108-111 stipulate a mechanism of how an individual or project proponent is required to restore the environment on a given site as near as it may be to the state in which it was before the project. The Act clearly states the steps that should be followed for the restoration process to be achieved. Restoration of the environment will be required in case the proposed office building and the associated facilities become obsolete and the project is decommissioned for whatever reasons after implementation. The dilapidation or removal of the proposed Uvuvi house office building with the associated activities will change the landform, requiring rehabilitation.

9.3. Purpose of Decommissioning and Rehabilitation of the Project Site

The design life of the proposed Uvuvi House is anticipated to be 50 years, a period within which the building and the associated facilities are expected to serve their purposes effectively. Therefore, the objective of the project decommissioning and rehabilitation plan will be to remove the installed building structure and the associated facilities at the proposed project site and return the sites to a condition as close to the pre-construction state as practical or better. The decommissioning process is intended to ensure that public health and safety, environmental protection, and compliance with applicable regulations are achieved. The procedures described herein identify the proposed activities to restore the site upon the project proposed structures becoming obsolete. Site rehabilitation activities will restore the project site to the surrounding land use practice at the time of the process.

9.4. Objectives of the Decommissioning and Rehabilitation Plan

Following site rehabilitation requirement by EMCA CAP 387, the following objectives have been derived for decommissioning and rehabilitation of the area disturbed by the proposed Uvuvi house development:

- The proposed Uvuvi house office block area and the associative site will be safe for humans, fauna, and flora or suitable for any other land use after decommissioning and rehabilitation process.

- The rehabilitated site and the process will aim to sustain a landform with similar land use, suitable and with capabilities prior to disturbance or any other land use determined and agreed upon by the stakeholders.
- The disturbed proposed Uvuvi house office block site will be rehabilitated so as to be non-polluting, self-sustaining, or to a condition where the maintenance requirements are consistent with any agreed-upon land use prior to the decommissioning process.

9.5. Reasons for Decommissioning and Rehabilitation

Several factors may lead to decommissioning of the proposed office building structure and the associated facilities, which include:

- Economic reasons such as inefficient of the associated facilities, high operation and maintenance costs of the building or obsolescence.
- Occurrence of unforeseen circumstances or a natural calamity for instance earthquake that may damage the building and the associated facilities beyond repair.
- Due to legal/stop order or financial liability
- Change in government policy rendering the building or any of the associated facilities obsolete

9.6. Proposed Decommissioning and Rehabilitation Process

The project owner SDFA&BE or any other Government agency mandated by law for whatever reason, if in need of terminating the operations of the proposed Uvivi house office block and the associated facilities, should prepare the decommissioning and site rehabilitation plan. The project decommissioning and site rehabilitation plan should be prepared in a participatory way by an expert registered by NEMA. The plan should be submitted to NEMA for approval at least 3 month as required before commencement of the decommissioning process. The plan should outline any pollutants or contaminated materials on site that require cleaning and provide adequate mitigation measures to avoid deleterious effects on the environment and human population.

10. CONCLUSION AND RECOMMENDATIONS

10.1. Conclusions

Fisheries-related institutions face accommodation challenges which have led to being accommodated in different buildings and locations within Nairobi city. The existing situation poses challenges to service delivery, and there was a need to consolidate the offices under one roof, which informed the essence of the Uvuvi house construction project. The proposed sub-project falls under the World Bank's support to the government through investment lending to transform and strengthen sectors related to the blue economy under the KEMSFED project. Uvuvi house office block shall be eleven floors high with a height of 43m from the ground level. The area in space of the building is estimated for 15,710m^2 with office space, exhibition, Auditorium, Library, and a restaurant. The building, in addition, shall have ground floor parking with a capacity of 200 cars as per the design Annex 1-Uvuvi House drawings and designs. The project generally has positive impacts, and for the negative impacts, mitigation measures have been proposed. The proposed project area was noted to be a highly modified habitat through anthropogenic activities, mainly from the settlement. As mandated by the laws guiding and governing the project activities, several institutions will have different roles on the project at varied phases of the project.

10.2. Mandatory Measures

The construction of the proposed Uvuvi House Office building is anticipated to generate important benefits to the national fisheries sector. Its construction will have some environmental and social impacts that can be controlled and reduce with proper clauses in the bidding document (Annex XIV), including the cost in the Bill of quantities and in the contract with contractor. In spite of the anticipated environmental impacts, with proper mitigation measures, the project is environmentally viable. The environmental and social assessment team of this ESIA proposes the implementation of the project with the following requirements which need to be included in the Biddind document or tender document to hire the contractors and subcontractors

- The contract between the National Project Coordination Unit of the State Department of Fisheries, Aquaculture and Blue Economy (SDFA&BE) and the contractors
- The subcontracts of the contractors which subcontracts will be accepted and cleared by the Engiener in charge of the supervision of the works. This Engiener will be responsible that the subcontractors enforce and applied all measures included in this ESIA, Environmental Techncal clauses included in the bidding document and contracts.
- The NPCU is responsible to ensure in the Bill of Quantities the costing of the Environmental, health and safety measures is included as described in this ESIA or any additional included after; contractors include in its offer the budget to implement these measures.
- The NPCU to hire a supervision team including the Supervision Engienner, Environmental Health and Safety Manager, Environmental and Health and Safety officers, Labor and Social officer.
- The project supervising team formed by the engineer and environmental and social manager and EHS, Labor and Social officers , and KEMFSED environmental and social safeguards team, to ensure full implementation by contractors and subcontractors of the ESMPs during construction/implementation stage

- The contractors Engineer and Environmental, Health and Safety Manager, Environmental and Health and Safety officers, Labor and Social officer to prepare a Construction ESMP to be implemented in construction by the contractor and all its subcontractors.
- The contractors Engineer and Environmental, Health and Safety Manager, Environmental and Health and Safety officers, Labor and Social officer to prepare an Operation ESMP (EMoP) to guide the operation and maintenance of the building by the State Department of Fisheries, Aquaculture and Blue Economy (SDFA&BE) to do so during operation and decommissioning stages of the project as required.
- The project implementing agency (SDFA&BE), contractor, and the supervising engineer ensures that ministry of health and world bank covid-19 guidelines are implemented to the later at the project site during the construction period and that all the workers commit to observing the rules. SDFA&BE to ensure the covid-19 rules are adhered to during operation of the building.
- The project contractor and the supervising engineer together with KEMFSED environmental and social safeguards team to ensure that compliance with GRM and sensitization and awareness is created among construction workers, contractor, subcontractors and the general public, on project Grievance Redress Mechanism (GRM) structures in place in the event of a need to address or report any emerging issues, Gender based violence and Sexual Exploitation Abuse on site or any complains by residents in the area.
- The contractor to consider engaging the services of NEMA approved environmental safeguards specialist to work with the supervising engineer to assist in implementing the recommendations in GRM, ESMP and EMoP as well as any emerging issues during project implementation period.
- There is need for SDFA&BE in consultation with other neighbouring stakeholders and the county government at operation phase of the project, to consider improving and maintaining the drainage system along Paupau road from the junction with Red Cross road. The stakeholders to be consulted shall include proposed Mugoya residential construction management, Elagance hotel, KEBS, Madina estate, Kenya Assemblies of God church and Dafam Hotel, Kenya-Re gardens estate and Kenya ports Authority estate among others. The consultation shall be in addition to the proposed mitigation measures at Uvuvi house project level as indicated in section 4.3.4.

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I. Uvuvi House Proposed Project Drawings and Design

II. Geotechnical Survey Report

III. Land Ownership Document

IV. Uvuvi House – TopHouse Layout

V. a)Public Consultation Questionnaires
b)Key Informants Interviews

VI. KCAA Height Approval for Uvuvi House

VII. City of Nairobi Approval of Uvuvi House Construction

VIII. NEMA Approval

IX. Air Quality Labaratory Report

X. Traffic Impact Assessment Report

XI. Hydrogeological Report for the Borehole

XII. Covid-19 Policy

XIII. Borrow Pit Guidelines

XIV. Technical Clauses-Environmental Social Instructions Contractor

XV. Site Monitoring Indicator Checklist

XVI. Code of Conduct for Contractor' Staff

XVII. Communication Plan/Stakeholders Engagement Plan

XVIII. Nairobi Water Commitment/Quality Assurance Letter

XIX. Traffic Layout and Deceleration Design Plan