

## Environmental Management Plan Checklist and Format

### Part II : EMP Checklist for Activities

<b>PART A: INSTITUTIONAL &amp; ADMINISTRATIVE FOR THE AFRICA CENTERS OF EXCELLENCE PROJECT</b>				
Country	GHANA			
Project title	West African Center for Cell Biology of Infectious Pathogens (WACCBIP)			
Scope of project and activity	Graduate level training and research in Cell and Molecular Biology of Infectious diseases			
Institutional arrangements (Name and contacts)	WB Andreas Blom	Project Management  Gordon Awandare gawandare@hotmail.com; gawandare@ug.edu.gh +233 543 717 697	Local Counterpart and/or Recipient  University of Ghana, Legon Ernest Aryeetey aryeetey@ug.edu.gh	
Implementation arrangements (Name and contacts)	Safeguard Supervision WB Hocine Chalal	Local Counterpart Supervision  John Gyapong jgyapong@ug.edu.gh	Local Inspectorate Supervision Philip Azundow pazundow@ug.edu.gh	Contactor
<b>SITE DESCRIPTION</b>				
Name of site	Department of Biochemistry, Cell and Molecular Biology building			
Describe site location	Volta Road, University of Ghana campus, Legon	Attachment 1: Site Map [ ]Y [√] N		
Who owns the land?	University of Ghana			
Geographic description	Accra East, Near Kotoka International airport			
<b>LEGISLATION</b>				
Identify national & local legislation & permits that apply to project activity	EPA Act 490 (1994)			
<b>PUBLIC CONSULTATION</b>				
Identify when / where the public consultation process took place	Project details posted on University's ORID website for public comment since March 2014			
<b>INSTITUTIONAL CAPACITY BUILDING</b>				
Will there be any capacity building?	[ ] N or [√]Y if Yes, Attachment 2 includes the capacity building program			

**PART B: ENVIRONMENTAL /SOCIAL SCREENING**

Will the site activity include/involve any of the following potential issues and/or impacts:

Activity and potential issues and/or impacts	Status	Additional references
1. Building rehabilitation <ul style="list-style-type: none"> <li>• Site specific vehicular traffic</li> <li>• Increase in dust and noise from demolition and/or construction</li> <li>• Construction waste</li> </ul>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	See Section <b>B</b> below
2. New construction <ul style="list-style-type: none"> <li>• Excavation impacts and soil erosion</li> <li>• Increase sediment loads in receiving waters</li> <li>• Site specific vehicular traffic</li> <li>• Increase in dust and noise from demolition and/or construction</li> <li>• Construction waste</li> </ul>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	See Section <b>B</b> below
3. Individual wastewater treatment system <ul style="list-style-type: none"> <li>• Effluent and / or discharges into receiving waters</li> </ul>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	See Section <b>C</b> below
4. Historic building(s) and districts <ul style="list-style-type: none"> <li>• Risk of damage to known/unknown historical or archaeological sites</li> </ul>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	See Section <b>D</b> below
5. Acquisition of land <sup>1</sup> <ul style="list-style-type: none"> <li>• Encroachment on private property</li> <li>• Relocation of project affected persons</li> <li>• Involuntary resettlement</li> <li>• Impacts on livelihood incomes</li> </ul>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	See Section <b>E</b> below
6. Hazardous or toxic materials <sup>2</sup> <ul style="list-style-type: none"> <li>• Removal and disposal of toxic and/or hazardous demolition and / or construction waste</li> <li>• Storage of machine oils and lubricants</li> </ul>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	See Section <b>F</b> below
7. Impacts on forests and/or protected areas <ul style="list-style-type: none"> <li>• Encroachment on designated forests, buffer and /or protected areas</li> <li>• Disturbance of locally protected animal habitat</li> </ul>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	See Section <b>G</b> below
8. Handling / management of medical waste <ul style="list-style-type: none"> <li>• Clinical waste, sharps, pharmaceutical products (cytotoxic and hazardous chemical waste), radioactive waste, organic domestic waste, non-organic domestic waste</li> <li>• On site or <input checked="" type="checkbox"/> off-site disposal of medical waste</li> </ul>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	See Section <b>H</b> below
9. Traffic and Pedestrian Safety <ul style="list-style-type: none"> <li>• Site specific vehicular traffic</li> <li>• Site is in a populated area</li> </ul>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	See Section <b>I</b> below

<sup>1</sup> Land acquisitions includes displacement of people, change of livelihood encroachment on private property this is to land that is purchased/transferred and affects people who are living and/or squatters and/or operate a business (kiosks) on land that is being acquired.

<sup>2</sup> Toxic / hazardous material includes and is not limited to asbestos, toxic paints, removal of lead paint, etc.

ACTIVITY	PARAMETER	GOOD PRACTICES MITIGATION MEASURES CHECKLIST
A. General Conditions	Notification and Worker Safety	<ul style="list-style-type: none"> <li>(a) The local construction and environment inspectorates and communities have been notified of upcoming activities</li> <li>(b) The public has been notified of the works through appropriate notification in the media and/or at publicly accessible sites (including the site of the works)</li> <li>(c) All legally required permits (to include not limited to land use, resource use, dumping, sanitary inspection permit) have been acquired for construction and/or rehabilitation</li> <li>(d) All work will be carried out in a safe and disciplined manner designed to minimize impacts on neighboring residents and environment.</li> <li>(e) Workers' PPE will comply with international good practice (always hardhats, as needed masks and safety glasses, harnesses and safety boots)</li> <li>(f) Appropriate signposting of the sites will inform workers of key rules and regulations to follow.</li> </ul>
B. General Rehabilitation and/or Construction Activities	Air Quality	<ul style="list-style-type: none"> <li>(a) During interior demolition use debris-chutes above the first floor</li> <li>(b) Keep demolition debris in controlled area and spray with water mist to reduce debris dust</li> <li>(c) Suppress dust during pneumatic drilling/wall destruction by ongoing water spraying and/or installing dust screen enclosures at site</li> <li>(d) Keep surrounding environment (side walks, roads) free of debris to minimize dust</li> <li>(e) There will be no open burning of construction / waste material at the site</li> <li>(f) There will be no excessive idling of construction vehicles at sites</li> </ul>
	Noise	<ul style="list-style-type: none"> <li>(a) Construction noise will be limited to restricted times agreed to in the permit</li> <li>(b) During operations the engine covers of generators, air compressors and other powered mechanical equipment should be closed, and equipment placed as far away from residential areas as possible</li> </ul>
	Water Quality	<ul style="list-style-type: none"> <li>(a) The site will establish appropriate erosion and sediment control measures such as e.g. hay bales and / or silt fences to prevent sediment from moving off site and causing excessive turbidity in nearby streams and rivers.</li> </ul>
	Waste management	<ul style="list-style-type: none"> <li>(a) Waste collection and disposal pathways and sites will be identified for all major waste types expected from demolition and construction activities.</li> <li>(b) Mineral construction and demolition wastes will be separated from general refuse, organic, liquid and chemical wastes by on-site sorting and stored in appropriate containers.</li> <li>(c) Construction waste will be collected and disposed properly by licensed collectors</li> <li>(d) The records of waste disposal will be maintained as proof for proper management as designed.</li> <li>(e) Whenever feasible the contractor will reuse and recycle appropriate and viable materials (except asbestos)</li> </ul>
C. Individual wastewater treatment system	Water Quality	<ul style="list-style-type: none"> <li>(a) The approach to handling sanitary wastes and wastewater from building sites (installation or reconstruction) must be approved by the local authorities</li> <li>(b) Before being discharged into receiving waters, effluents from individual wastewater systems must be treated in order to meet the minimal quality criteria set out by national guidelines on effluent quality and wastewater treatment</li> <li>(c) Monitoring of new wastewater systems (before/after) will be carried out</li> </ul>
D. Historic building(s)	Cultural Heritage	<ul style="list-style-type: none"> <li>(a) If the building is a designated historic structure, very close to such a structure, or located in a designated historic district, notify and obtain approval/permits from local authorities and address all construction activities in line with local and national legislation</li> <li>(b) Ensure that provisions are put in place so that artifacts or other possible "chance finds" encountered in excavation or construction are noted, officials contacted, and works activities delayed or modified to account for such finds.</li> </ul>
E. Acquisition of land	Land Acquisition Plan/Framework	<ul style="list-style-type: none"> <li>(a) If expropriation of land was not expected and is required, or if loss of access to income of legal or illegal users of land was not expected but may occur, that the bank task Team Leader is consulted.</li> <li>(b) The approved Land Acquisition Plan/Framework (if required by the project) will be implemented</li> </ul>
F. Toxic Materials	Asbestos management	<ul style="list-style-type: none"> <li>(a) If asbestos is located on the project site, mark clearly as hazardous material</li> </ul>

		<p>(b) When possible the asbestos will be appropriately contained and sealed to minimize exposure</p> <p>(c) The asbestos prior to removal (if removal is necessary) will be treated with a wetting agent to minimize asbestos dust</p> <p>(d) Asbestos will be handled and disposed by skilled &amp; experienced professionals</p> <p>(e) If asbestos material is be stored temporarily, the wastes should be securely enclosed inside closed containments and marked appropriately</p> <p>(f) The removed asbestos will not be reused</p>
	Toxic / hazardous waste management	<p>(a) Temporarily storage on site of all hazardous or toxic substances will be in safe containers labeled with details of composition, properties and handling information</p> <p>(b) The containers of hazardous substances should be placed in an leak-proof container to prevent spillage and leaching</p> <p>(c) The wastes are transported by specially licensed carriers and disposed in a licensed facility.</p> <p>(d) Paints with toxic ingredients or solvents or lead-based paints will not be used</p>
<b>G.</b> Affects forests and/or protected areas	Protection	<p>(a) All recognized natural habitats and protected areas in the immediate vicinity of the activity will not be damaged or exploited, all staff will be strictly prohibited from hunting, foraging, logging or other damaging activities.</p> <p>(b) For large trees in the vicinity of the activity, mark and cordon off with a fence large tress and protect root system and avoid any damage to the trees</p> <p>(c) Adjacent wetlands and streams will be protected, from construction site run-off, with appropriate erosion and sediment control feature to include by not limited to hay bales, silt fences</p> <p>(d) There will be no unlicensed borrow pits, quarries or waste dumps in adjacent areas, especially not in protected areas.</p>
<b>H.</b> Disposal of medical waste	Infrastructure for medical waste management	<p>(a) In compliance with national regulations the contractor will insure that newly constructed and/or rehabilitated health care facilities include sufficient infrastructure for medical waste handling and disposal; this includes and not limited to:</p> <ul style="list-style-type: none"> <li>▪ Special facilities for segregated healthcare waste (including soiled instruments “sharps”, and human tissue or fluids) from other waste disposal: <ul style="list-style-type: none"> <li>a. Clinical waste: yellow bags and containers</li> <li>b. Sharps – Special puncture resistant containers/boxes</li> <li>c. Domestic waste (non-organic): black bags and containers</li> </ul> </li> <li>▪ Appropriate storage facilities for medical waste are in place; and</li> <li>▪ If the activity includes facility-based treatment, appropriate disposal options are in place and operational</li> </ul>
<b>I</b> Traffic and Pedestrian Safety	Direct or indirect hazards to public traffic and pedestrians by construction activities	<p>(b) In compliance with national regulations the contractor will insure that the construction site is properly secured and construction related traffic regulated. This includes but is not limited to</p> <ul style="list-style-type: none"> <li>▪ Signposting, warning signs, barriers and traffic diversions: site will be clearly visible and the public warned of all potential hazards</li> <li>▪ Traffic management system and staff training, especially for site access and near-site heavy traffic. Provision of safe passages and crossings for pedestrians where construction traffic interferes.</li> <li>▪ Adjustment of working hours to local traffic patterns, e.g. avoiding major transport activities during rush hours or times of livestock movement</li> <li>▪ Active traffic management by trained and visible staff at the site, if required for safe and convenient passage for the public.</li> <li>▪ Ensuring safe and continuous access to office facilities, shops and residences during renovation activities, if the buildings stay open for the public.</li> </ul>

<b>PART 8: MONITORING PLAN</b>							
<b>Phase</b>	<b>What</b> (Is the parameter to be monitored?)	<b>Where</b> (Is the parameter to be monitored?)	<b>How</b> (Is the parameter to be monitored?)	<b>When</b> (Define the frequency / or continuous?)	<b>Why</b> (Is the parameter being monitored?)	<b>Cost</b> (if not included in project budget)	<b>Who</b> (Is responsible for monitoring?)
During activity <b>preparation</b>							
New Construction	Clearing of land	Legon campus	observation	Daily	For possible generation of dust	Covered by University	University environment officer
Hazardous and Toxic materials	Chemical purchase list	Center labs	inspection	When orders are made	To identify any hazardous items	none	Head of Training and Research at Center
Medical waste	Handling protocols	Center labs	inspection	Before research begins	To ensure adequate safeguards	none	Head of Training and Research at Center
During activity							

<b>implementation</b>							
New Construction	Construction waste	Legon campus	observation	Daily	For possible generation of dust and dumping of waste	Covered by University	University environment officer
Hazardous and Toxic materials	Lab chemicals	Center labs	Lab inspection	weekly	To ensure safety of personnel and protection of environment	Covered by University	University environment officer
Medical waste	Blood samples	Center labs	Lab inspection	weekly	To ensure safety of personnel and protection of environment	Covered by University	University environment officer
<b>During activity supervision</b>							
New Construction	Clearing land and waste disposal	Legon campus	Site inspection	weekly	Compliance with environmental protection guidelines	Covered by University	University environment officer
Hazardous and Toxic materials	Use of lab chemicals	Center labs	Lab inspection	monthly	To ensure compliance with appropriate handling and disposal	none	Head of Training and Research at Center
Medical waste	Handling of medical waste	Center labs	Lab inspection	monthly	To ensure compliance with appropriate handling and disposal	none	Head of Training and Research at Center