

NAME OF ACE: CENTRE OF EXCELLENCE FOR INFECTIOUS DISEASE OF HUMANS AND ANIMALS IN ZAMBIA (CEIDHAZ)

Location: University of Zambia, Zambia

ANNEX

ENVIRONMENT SAFEGUARDS

1.1 Project's Environmental Management Plan

This ACE project is a low-risk minimal civil works involving construction of an office building, class rooms and laboratories. This project's environmental management plan (EMP) consists of set of mitigation, monitoring, and institutional measures to be taken during implementation and operation to eliminate adverse environmental and social impacts, offset them, or reduce them to acceptable levels. This plan also includes the actions needed to implement these measures. The EMP checklist-type has been used.

The EMP checklist has the following sections:

Part 1 includes a descriptive part that characterizes the project, specifies institutional and regulatory aspects, describes technical project content, outlines any potential need for capacity building and briefly characterizes the public consultation process.

Part 2 includes a screening checklist of potential environmental and social impacts, where activities and potential environmental issues can be checked in a simple Yes/No format. If any given activity/issue is triggered by checking be followed, which contains clearly formulated environmental and social management and mitigation measures.

Part 3 contains a simple monitoring plan to enable the Contractor as well as authorities and the World Bank specialists to monitor implementation of environmental management and protection measures and detect deviations and shortcomings in a timely manner. It is structured in a way to provide concrete and enforceable environmental and social measures,

which are understandable to non specialists (to check and enforce.

1.2 General and Site Information

The Table 1 below provides the institution and administrative framework for the project. It provides key information on the location of the University of Zambia and the legal requirement of this project.

Table 1 Institutional & Administrative for the Africa Centres of Excellence Project

Institutional and administrative framework for the ACE project				
Country	Zambia			
Project title	Centre of Excellence for Infectious Diseases of Humans and Animals in Zambia (CEIDHAZ)			
Scope of project and activity	This project involves training, research, exchange programme and industry outreach. To support and run these activities, there will be low-risk minimal civil works such as minor office/teaching-research building, rehabilitation works or refurbishment works of laboratory/classroom to provide space for postgraduate students.			
Institutional arrangements (Name and contacts)	World Bank Task Team Leader (Professor Aaron S. Mweene)	Project Management	Local Counterpart and/or Recipient (Zambian Government/CEIDHAZ Project Team)	
Implementation arrangements (Name and contacts)	Safeguard Supervision	Local Counterpart Supervision	Local Inspectorate Supervision (UNZA-Resident Engineer Mr. Marvin Mwansa)	Contractor
SITE DESCRIPTION				
Name of site	University of Zambia			
Describe site location	Site is located at the eastern part of Lusaka, Zambia	Attachment 1: Site Map []Y [x] N		
Who owns the land?	The University of Zambia was established by the University of Zambia Act of 1965, whose major mandate was to produce the nation's high level human resource. Higher Education Act No.4 of 2013 provides a legal framework for university education			
Geographic description	The coordinate of the site is: 15.4000 S°, 28.3333°E			
LEGISLATION				
Identify national & local legislation &	Zambia has an environmental policy and regulation and legal instrument under the Zambia Environmental Management Agency (ZEMA) for safeguarding the environment.			

permits that apply to project activity

Permit is required for any project that is likely to impact on the environment.

PUBLIC CONSULTATION Identify when / where the public consultation

Table 1 : Public consultations

Country – Center of Excellence	Date of consultative meeting	Stakeholders present	Issues raised	Response to the issues
Country : ZAMBIA Centre of Excellence : Centre of Excellence for Infectious Diseases of Humans and Animals in Zambia (CEIDHAZ)	02/02/2016	1. Resident Engineer, University of Zambia	Emissions from solid waste-noted that improper disposal of biodegradable and all non-biodegradable waste would have an effect on the environment.	There is a clear policy on the disposal of degradable and non-degradable waste at UNZA and these will be adhered to strictly during the construction phase.
		2. School of Engineering	1. Noise from increased traffic	Only relatively moderate traffic load is expected. There have been other larger construction projects within UNZA and they did not pose any threat in terms of noise pollution
		3. School of Agriculture Sciences	Fire risk-noted that there is always a likely risk of fire in new buildings.	Firefighting equipment will be installed in the building in consultation with resident Engineer's Department.
		4. School of Natural Sciences Department of Environmental	Impact on water quality-noted that the water will be	Spillages would be minimized as much as possible through

		Studies	obtained from the local UNZA boreholes. Improper discharge of the waste water could contaminate any ground water. The impacts on the water quality would arise from the effluent discharge. The effluent would come from the sewer, floor washings, and oil drops from vehicles entering premises.	consultations with resident Engineer's Department.
		5. School of Humanities and Social Sciences	HIV/AIDS-noted that the proposed project will have an impact on HIV/AIDS through the construction employees enjoying a salary for the duration of the construction. This short term increase in income could result in negative social behaviour.	Mitigation will involve sensitization of the crew to HIV/AIDS cause and effects. HIV/AIDS policy already in place at UNZA

INSTITUTIONAL CAPACITY BUILDING

<p>Will there be any capacity building?</p>	<ul style="list-style-type: none"> • Yes [x] or No [] The proposed CEIDHAZ will focus on the following objectives:- <ol style="list-style-type: none"> 1. Develop critical mass of skilled human resources that will contribute to development of innovative interventions for control and elimination of infectious diseases through training to MSc, PhD and Post-Doctoral levels. 2. Develop and strengthen capacity for high quality innovative research focusing on the control of NTDs emerging, re-emerging and zoonotic diseases 3. Develop capacity for high quality innovative research focusing on bacterial zoonoses and anti-microbial resistance 4. Develop advocacy programs for community and policy
--	--

	<p>makers on infectious diseases</p> <p>5. Strengthen network/linkages with local, regional and international institutions to foster high quality training, research and technological transfer for long term sustainability of CEIDHAZ.</p> <p>6. Strengthen infrastructure for training, research and development of CEIDHAZ.</p>

Environmental and Social Screening

The environmental and social screening in a simple Yes/No format followed by mitigation measures for any given activity and the monitoring plan for activities during project construction and implementation. Table 2 present the general list of activities and the potential impacts. The activities that are likely to be encountered in this project are building rehabilitation and new construction, so potential impact under section B will have to be addressed.


Table 2: Environmental and Social Screening


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 <input type="checkbox"/> Site specific vehicular traffic <input type="checkbox"/> Increase in dust and noise from demolition and/or construction <input type="checkbox"/> Construction waste	[X] Yes [] No	Table 3
	2. New construction <input type="checkbox"/> Excavation impacts and soil erosion <input type="checkbox"/> Increase sediment loads in receiving Waters <input type="checkbox"/> Site specific vehicular traffic	[X] Yes [] No	Table 3

ACE Implementation Plan

	<input type="checkbox"/> Increase in dust and noise from demolition and/or construction <input type="checkbox"/> Construction waste		
	3. Individual wastewater treatment system <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Effluent and / or discharges into receiving waters		
	<p>Note: The University of Zambia, where the proposed CEIDHAZ is going to be housed, has a proper Reticulation Network at both Sewage and Sewerage System which handles all waste water. All this waste water is centrally treated in Closed Maturation Tanks before it is discharged into the Municipal Waste Water Reticulation Network. The Municipal Council has an Open Maturation Ponds Site. The final stages having fish to determine both the Chemical Oxygen Demand (COD) and the Biological Oxygen Demand (BOD) of the water before release into an open stream. This is after all purification processes have been done, including removal of all solids, biological and non-biologicals which rendered harmless through various processes at the Municipal Site.</p>		
	4. Historic building(s) and districts <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Risk of damage to known/unknown historical or archaeological sites		Table 3
	5. Acquisition of land ⁶ <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Encroachment on private property <input type="checkbox"/> Relocation of project affected persons <input type="checkbox"/> Involuntary resettlement <input type="checkbox"/> Impacts on livelihood incomes		Table 3
	6. Hazardous or toxic materials ⁷ <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Removal and disposal of toxic and/or hazardous demolition and / or construction waste <input type="checkbox"/> Storage of machine oils and Lubricants		Table 3
	7. Impacts on forests and/or protected areas <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Table 3

-
- Encroachment on designated forests,
buffer and /or protected areas
-

⁶ Land acquisitions includes displacement of people, change of livelihood, encroachment on private property through illegal means, illegal construction, illegal occupation, illegal mining and/or squatters on the project area, etc. 

⁷ Toxic / hazardous substances, including asbestos, lead, mercury, etc. 

1.5 Mitigation Measures

Table 3 presents a checklist of good practice mitigation measures. Section B of these good practice mitigation measures will be applicable to this ACE project. The impacts such as air quality, noise, water quality and waste management will have to be mitigated.

The EMP identifies feasible and cost-effective measures that may reduce potentially significant adverse environmental impacts to acceptable levels. The plan includes compensatory measures if mitigation measures are not feasible, cost-effective, or sufficient.

	<input type="checkbox"/> Disturbance of locally protected animal habitat	
	<p>8. Handling / management of medical waste</p> <p><input type="checkbox"/> Clinical waste, sharps, pharmaceutical products (toxic and hazardous chemical waste), radioactive waste organic domestic waste, non-organic domestic waste</p> <p><input type="checkbox"/> On site or off-site disposal of medical Waste</p>	[X] Yes [] No
	<p>9. Traffic and Pedestrian Safety</p> <p><input type="checkbox"/> Site specific vehicular traffic</p> <p><input type="checkbox"/> Site is in a populated area</p>	[X] Yes [] No

Table 3: Good Practices Mitigation Measures Checklist

ACTIVITY	PARAMETER	GOOD PRACTICES MITIGATION MEASURES CHECKLIST
A. General Conditions	Notification and Worker Safety	(a) The local construction and environment inspectorates and communities have been notified of upcoming activities (b) The public will be notified of the works through appropriate notification in the media and/or at publicly accessible sites (including the site of the works) (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 (d) All work will be carried out in a safe and disciplined manner designed to minimize impacts on neighbouring residents and environment. (e) Workers' Personal Protective Equipment (PPE) will comply with international norms (f) Appropriate signage of the sites will inform workers of key rules and regulations to follow.
B. General Rehabilitation and /or Construction Activities	Air Quality	(a) During interior demolition use debris-chutes above the first floor (b) Keep demolition debris in controlled area and spray with water mist to reduce debris dust (c) Suppress dust during pneumatic drilling/wall destruction by ongoing water spraying and/or installing dust screen enclosures at site
	Noise	(a) There will be no excessive idling of construction vehicles at sites (b) Construction noise will be limited to restricted times agreed to in the permit
	Water Quality	(a) There will be no risk of contaminating nearby streams and rivers

	Waste management	<p>(a) Waste collection and disposal pathways and sites will be identified for all major waste types expected from demolition and construction activities.</p> <p>(b) Construction waste will be collected and disposed properly by licensed collectors</p> <p>(c) Whenever feasible the contractor will reuse and recycle appropriate and viable materials (no Asbestos will be used)</p>
C. Individual wastewater	Water Quality	<p>(a) The approach to handling sanitary wastes and wastewater from building sites (installation or reconstruction) must be approved by the local authorities</p> <p>(b) Monitoring of new wastewater systems (before/after) will be carried out</p>
E. Acquisition of land	Land Acquisition Plan/Framework	This activity will not take place
F. Toxic	Asbestos	No asbestos will be used

	Toxic / hazardous waste management	(a) All biological wastes will be autoclaved and thereafter incinerated and then safe disposal once all have been inactivated.
G. Affects	Protection	This work will not affect forests/protected areas
H. 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"> □ Special facilities for segregated healthcare waste (human tissue or fluids) from other waste disposal: <ul style="list-style-type: none"> a. Clinical waste: yellow bags and containers b. Sharps –Special puncture resistant containers/boxes c. Domestic waste (non-organic): black bags and containers □ There is a high-octane incinerator that can burn up to 2,000°C
I Traffic and Pedestrian Safety	Direct or indirect hazards to public traffic and pedestrians by construction activities	<p>(a) 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"> □ Signage, warning signs, barriers and traffic diversions: site will be clearly visible and the public warned of all potential hazards □ 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. □ Adjustment of working hours to local traffic patterns, e.g. avoiding major transport activities

during rush hours or times of livestock movement

- Active traffic management by trained and visible staff at the site, if required for safe and convenient passage for the public.
- Ensuring safe and continuous access to office facilities, shops and residences during renovation activities, if the buildings stay open for the public.

1.6 Monitoring Plan

The monitoring section of the EMP provides

- (a) Specific description, and technical details, of monitoring measures, including the parameters to be measured, methods to be used, sampling locations, frequency of measurements, detection limits (where appropriate), and definition of thresholds that will signal the need for corrective actions; and
- (b) Monitoring and reporting procedures to (i) ensure early detection of conditions that necessitate particular mitigation measures, and (ii) furnish information on the progress and results of mitigation.

Table 4 presents the monitoring plan for the project by outlining what have to be checked during activity preparation and implementation. For the monitoring of safeguards, a due diligence of the designated construction inspector is required. The key monitoring criteria have to be checked during and after works for compliance assurance.

Such parameters and criteria include:

- o dust generation and prevention,
- o amount of water used and discharged by site,
- o presence of proper sanitary facilities for workers,
- o waste collection of separate types (mineral waste, wood, metals, plastic, hazardous waste, e.g. spent engine oil), waste quantities, proper organization of disposal pathways and facilities, or reuse and recycling wherever possible.

To assure a degree of leverage on the Contractor appropriate clause will be introduced in the works contracts, specifying penalties in case of noncompliance with the contractual environmental provisions, e.g. in the form of

withholding a certain proportion of the payments, its size depending on the severity of the breach of contract.

Capacity Development

To support timely and effective implementation of environmental project components and mitigation measures, the EMP draws on the EA's assessment of the existence, role, and capability of environmental units on site or at the agency and ministry level. Specifically, the EMP provides a specific description of institutional arrangements - who is responsible for carrying out the mitigatory and monitoring measures (e.g., for operation, supervision, enforcement, monitoring of implementation, remedial action, financing, reporting, and staff training).

Project Implementation

It is expected that the plan be specific in its description of the individual mitigation and monitoring measures and its assignment of institutional responsibilities, and it must be

integrated into the project's overall planning, design, budget, and implementation. Such integration is achieved by establishing the EMP within the project so that the plan will receive funding and supervision along with the other components.

For all three aspects (mitigation, monitoring, and capacity development), the EMP provides

- (a) an implementation schedule for measures that must be carried out as part of the project, showing phasing and coordination with overall project implementation plans; and
- (b) the capital and recurrent cost estimates and sources of funds for implementing the EMP are also to be integrated into the total project cost.

Table 4 Monitoring Plan

Phase	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Cost (if not included in project budget)	Who (Is responsible for monitoring?)
During activity preparation	Traffic management, availability of waste disposal facilities, hazardous waste inventory	at the site, in site vicinity, building yard	check if design and project planning, procedures, visual /analytical if in doubt, visual /research in toxic materials databases	before launch of construction, before start of rehabilitation, before approval to use materials,	safety of general public, timely detection of waste disposal bottlenecks, public and workplace health and safety,	According to budget line	Contractor, Resident Engineer
During activity implementation and supervision	Dust Generation, noise emissions, waste and wastewater types, quality and volumes,	on site and in immediate neighbourhood, close to potential residents at discharge points or in	consultation of locals, visual, analytical if suspicious, count of waste transports off site, check flow rates and	daily / continuous	avoidance of public nuisance, avoidance of negative impacts on ground/surface waters, ensuring proper waste	According to budget line	Contractor, Resident Engineer

surface
drainage

storage
facilities

runoff routes
for wastewater

management
and disposal

Table 5: The responsibility for monitoring of implementation of EMPs for CEIDHAZ is as follows:

Institution	EMP monitoring arrangements (name, title, contact information)
Zambia Environmental Management Agency (ZEMA)	Mr. Fredrick Muyano Principal Inspector Zambia Environmental Management Agency, Corner Church and Suez Roads Plot No. 6975, Lusaka 10101, Zambia e-mail: “Fredrick Muyano”<fmuyano@yahoo.com> Phone: +260 21 1254023
University of Zambia (UNZA) Resident Engineer’s Department.	Mr. Mervin Mwansa, Resident Engineer, University of Zambia, P.O. Box 32379, Lusaka. e-mail: mervin.mwansa@unza.zm , residenteng@unza.zm . Cell: 0979 499854