



**Pharm-Biotechnology and Traditional  
Medicine Center (PHARMBIOTRAC)**

**Africa Centers of Excellence (ACEII)  
Project 44**

# **Environment and Social Management Plan**

**14.03.2021**  
(Version 2)



**Mbarara University of Science and Technology**



## Contents

<b>I. PART I: Activity Description.....</b>	<b>4</b>
A. The Project Development Objectives (PDO) .....	4
A1. Project Beneficiaries .....	4
A2. Regional Priority Areas for ACEs: .....	5
A3. Proposal development and Selection Process .....	5
B. Institutional and Implementation Arrangements .....	6
B1. Hosting Institution:.....	6
B2. Project Site Location .....	7
B3. The PHARMBIOTRAC Project Location .....	8
B4. Implementation & Governance .....	10
C. Environmental screening, assessment and management and World Bank applicable environment policies .....	11
C1. Environmental impacts are expected to be low to moderate.....	11
C2. Environmental Management Approach .....	11
D. COVID-19 Pandemic Information and SOP Procedure (Brief).....	11
E. Monitoring and reporting .....	12
<b>II. Part II: ESMP Checklist for Activities.....</b>	<b>13</b>
ESMP Checklist for Activities .....	14
<b>III. Annex A: Public consultations .....</b>	<b>19</b>
<b>IV. Annex B: Public Consultation Workshop Participants list: .....</b>	<b>28</b>
<b>V. Annex C: Minutes of Public Consultation Workshop .....</b>	<b>34</b>

### Document History:

Version 1: 15<sup>th</sup> January 2015

Version 2: 14.03.2021



*Pharm-Bio Technology and Traditional Medicine Center (PHARMBIOTRAC), public consultation workshop participants, 13th January 2016 at Mbarara University of Science and Technology (MUST)*

### **Africa Centers of Excellence Project Environment and Social Management Plan**

- **Part I:** *constitutes a descriptive part (“site passport”) that describes the project specifics in terms of physical location, the institutional and legislative aspects, the project description, inclusive of the need for a capacity building program and description of the public consultation process. This section could be up to two pages long. Attachments for additional information can be supplemented if needed.*
- **Part II:** *includes the environmental and social screening in a simple Yes/No format (Section A) followed by proposed mitigation measures for any given activity (Section B) and a template for a monitoring plan for activities during project construction and implementation (Section C). It retains the same format required for standard World Bank EMPs.*



## **PART I: Activity Description**

### **A. The Project Development Objectives (PDO)**

*The Project Development Objectives (PDO) for the ACE II is to strengthen Eastern and Southern African higher education institutions to deliver quality post-graduate education and build collaborative research capacity in Health.*

#### **A1. Project Beneficiaries**

**The IDA credit beneficiaries are:**

- (a) Students in participating universities and their partner institutions across Eastern and Southern Africa who benefit from high quality education and training in high growth sectors;
- (b) Employers and targeted industries who have easy access to high quality/skilled personnel, results of applied research, and scientific knowledge for productivity improvement; as well as knowledge partners (including companies, governmental or non-governmental organizations) who uses research produced by the ACEs;
- (c) Faculty and staff in the ACEs who benefit from improved teaching and research conditions and professional development opportunities;
- (d) Regional institutions such as EAC and SADC benefit from improved capacity of the ACEs; and
- (e) Faculty and students in STEM and other priority-sector disciplinary areas who benefit from fellowships/scholarships, exchange visits, and other knowledge-sharing activities across the ACEs organized by the ACE II Regional Facilitation Unit.



### A2. Regional Priority Areas for ACEs:

Cluster	Priority Area
Health	Pharm-bio technology (drug discovery, science-driven traditional medicine & development)

### A3. Proposal development and Selection Process

The ACEs financed under the ACE II project has being selected through an open, objective, transparent, and merit-based competitive process. The Call for Proposals was issued on July 31, 2015 and a total of 109 proposals were submitted by the nine participating countries, out of which 92 were deemed eligible<sup>1</sup> by IUCEA. The eligible proposals which covered eight countries<sup>2</sup> were evaluated using a set of clearly defined criteria<sup>3</sup> by an Independent Evaluation Committee (IEC) consisting of over 60 African and international subject-matter experts. The technical evaluation where each proposal was evaluated by three experts produced a shortlist of 40 proposals which then moved into the second phase of the evaluation – onsite leadership evaluation. During the onsite evaluation, members of the IEC visited each of the 40 proposed ACEs and submitted their results to IUCEA. Reviewing the compiled scores from the technical and onsite evaluations, and considering geographical distribution and balance among priority areas, the RSC recommended the conditional selection of 23 ACEs. ***[These conditionally selected ACEs underwent FM, procurement and safeguards review, and were confirmed by the WB Board]***. The 23 conditionally selected ACEs were selected to ensure balance across countries, priority areas and importance of the proposal to the region’s development.

The ACEs have the autonomy to implement their own proposals, with the support from their host universities and governments as well as the RFU. For assuring the achievement of targeted results, the ACE II project employ a performance-based financing mechanism to disburse funding from their respective Ministry of Finance (MoF) to each selected ACE against a set of agreed Disbursement Linked Indicators. To ensure regional collaboration for greater impact, the project provides a mix of funding requirements and incentives to promote regional mobility of students and faculty, and partnerships with regional and international institutions as well as with the private sector. Each ACE signed a performance and funding contract with its government (i.e., the Ministry of Education and Sports) which were further developed during appraisal.

<sup>1</sup> Only those proposals submitted by the governments of the participating countries, with existing PhD programs, and in the defined regional priority areas are eligible for consideration. The eligibility screen was done by the Inter-University Council for East Africa (IUCEA) which is the designated RFU for the ACE II project.

<sup>2</sup> All the proposals submitted from MZ were deemed ineligible because they came from institutions that did not offer PhD programs, which is an eligible requirement.

<sup>3</sup> These criteria, together with proposal eligibility and evaluation process, are captured in the “Protocol for Proposal Assessment” that was approved by the RSC as a guideline for the Independent Evaluation Committee.



### B. Institutional and Implementation Arrangements

#### B1. Hosting Institution:

##### *About Mbarara University of Science and Technology (MUST)*

Mbarara University of Science and Technology (MUST), is the second oldest public University in Uganda, and was established by an Act of Parliament of the Republic of Uganda as body corporate with perpetual succession and a common seal and with power to sue and to be sued in its corporate name. It aims at promoting relevant and quality education in science and technology for community transformation. MUST promotes transfer of scientific knowledge and innovations to the community for sustainable society transformation. The University delivers both undergraduate and graduate programs. The Vision of MUST is "to be a center of academic and professional excellence in Science and Technology" and the mission is "to provide quality and relevant education at national and international level with particular emphasis on Science and Technology and its application to community development". The main products of the university are the high quality graduates in the fields of medicine, science and technology for community transformation. The products of MUST continue to transfer scientific knowledge and innovations to the community for sustainable society transformation.

Mbarara University of Science and Technology (MUST) has vibrant graduate training programs. Graduate programs at MUST are tailored towards imparting practical knowledge, skills and competences through its strong faculties and institutes. These graduate programs attract both national and international students in substantial numbers and are all aimed at the university playing important role in contributing to the well-being of humanity as well as to the national and regional socio-economic development and transformation of society. Over the years, MUST has won acclaimed national and international recognition for best practices in outreach and community relations, and as a Center of Excellence in Science and Technology from Association of Commonwealth Universities, European Union, Civil Society of Uganda, The East African Community, producing the best development workers and health care professionals.

MUST is a thriving residential campus and community where students live in 'villages'. On campus are two halls of residence popularly referred to as the Gents and Ladies flats. The rest of the student population live around the University campus in private but accredited hostel facilities by the Dean of Students office in collaboration with the Mbarara District Police station. Learning and living are intimately intertwined at MUST. Extra-Curricular activities, professional student associations and clubs, performances, forums and sports and games beckon students as well as the communities around the University. The Student Government known as the Guild Government is a melting pot of young and ambitious leaders who seek for democratic mandate and offer leadership on behalf of the student population. The Students' Guild mission is to improve the quality of student's life at the university, both academically and socially by addressing student needs and concerns, providing financial structure for student clubs and organizations and representing the student body in a professional manner. There are also a number of well-known and established student activities, such as Kina-MUST, cultural gala, bazaar, freshmen and fresh women ball that add to the unique tradition and experience of being a student at MUST.



### B2. Project Site Location

The project has two sites. The main project site is located at Kimuhuro Main Campus of Mbarara University of Science and Technology located along Mbarara-Bushenyi Highway about 7km from Mbarara Town and about 5km from the MUST Town campus. Kihumuro Campus is located at S0°35'44.8" E030°36'08.2". The project offices, lecture theatres, library and business incubation units are located on the fourth floor of the main block, block A, Faculty of Applied Sciences and Technology (FAST) Building at Kimuhuro campus. The PHARMBIOTRAC production laboratory is located in the multipurpose laboratory block. The site also host the project Living gene bank/herbal gardens located in area adjacent to River Rwizi as allocated in the Kihumuro Masterplan.

The second site of PHARMBIOTRAC comprising of research laboratories and teaching laboratories are found within the departments of Pharmacy, Pharmaceutical Sciences and Pharmacology at the MUST Town campus which is 2km from the Mbarara Town along Plot 8 – 18 located along Kabale Road. The geographic location of the area is S0°.61'68.0" E030°65'57.6" and elevation; 1433 meters above sea level. The existing research and teaching laboratories will be expanded to cater for the activities of the Pharm-Bio Technology and Traditional Medicine Center (PHARMBIOTRAC) project for which the renovation works ESMP will have to be done before commencement of the civil works. This will be done according to the existing Ugandan legal frameworks such as the Constitution of Uganda, 1995, the Land Act 1998, the National Environment Act 1995, the Public Health Act, 1964, the Investment code 1991, the National Environmental (Discharge of Effluence) Regulations, 1999, the Occupational Safety and Health Act, 2006, the National Environment (Noise standards and control) Regulations, 2003, the Wetlands, River Banks and Lakeshores Management Regulations, 2000, the Water Act, 1995, the Workers Compensation Act, Cap 225 of the Laws of Uganda and other regulatory requires of Uganda as may be put in place with time.

#### *Site climatic, soils and geology*

**Rainfall:** Mbarara district where MUST is located receives average annual rainfall of 1200mm with two rainy seasons, February to May and the September to December. It also has two dry seasons, with temperature range of 17°C to 30°C.

**Soils:** The district has sandy loam, clay loam and slightly laterite loam soils.

**Geology:** The district is characterized by Precambrian rock of the following four types:

- (i) The Buganda Toro system---age dating over 1800 million years,
- (ii) Wholly granitised or high to medium grade metamorphic formation,
- (iii) The Kararagwe - Ankole system—aged dating varies from 1300 million to 1400 million years,
- (iv) The granitoid and highly granitised rock.

**B3. The PHARMBIOTRAC Project Location**



Figure 1: Location of Kihumuro Campus on Google Map where PHARMBIOTRAC main offices (red dot), living Gene-Bank and pilot herbal medicines processing unit located (green/tallow shaded space)

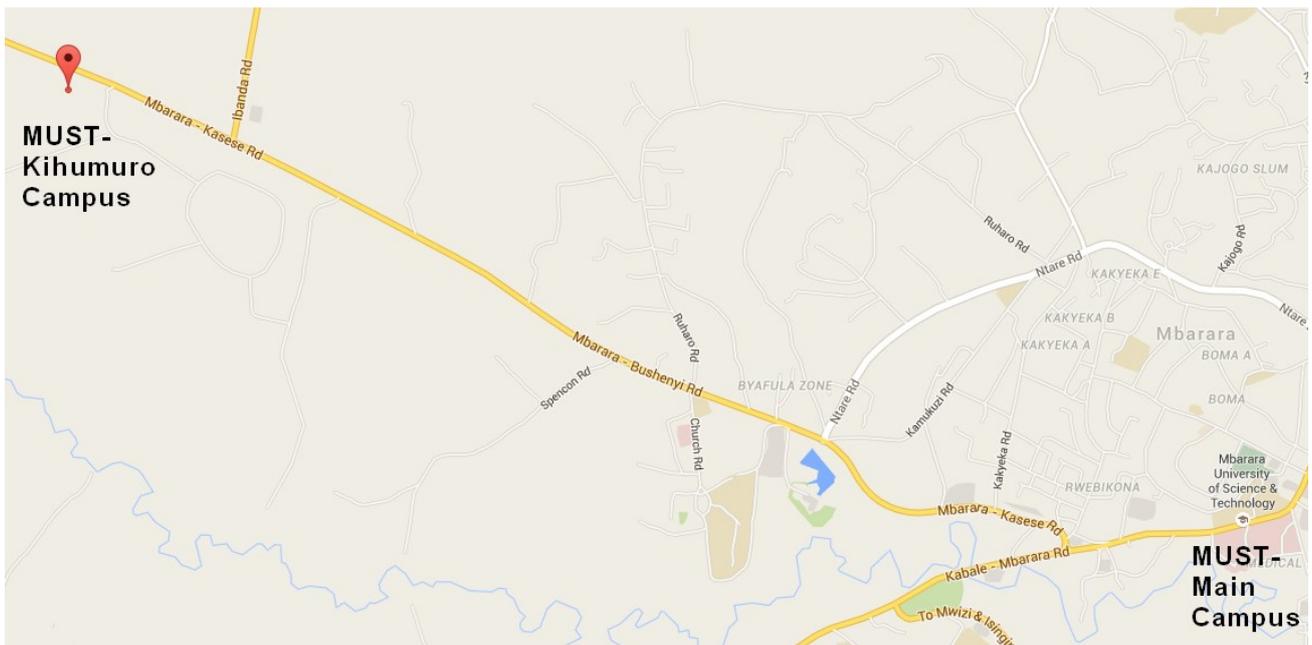
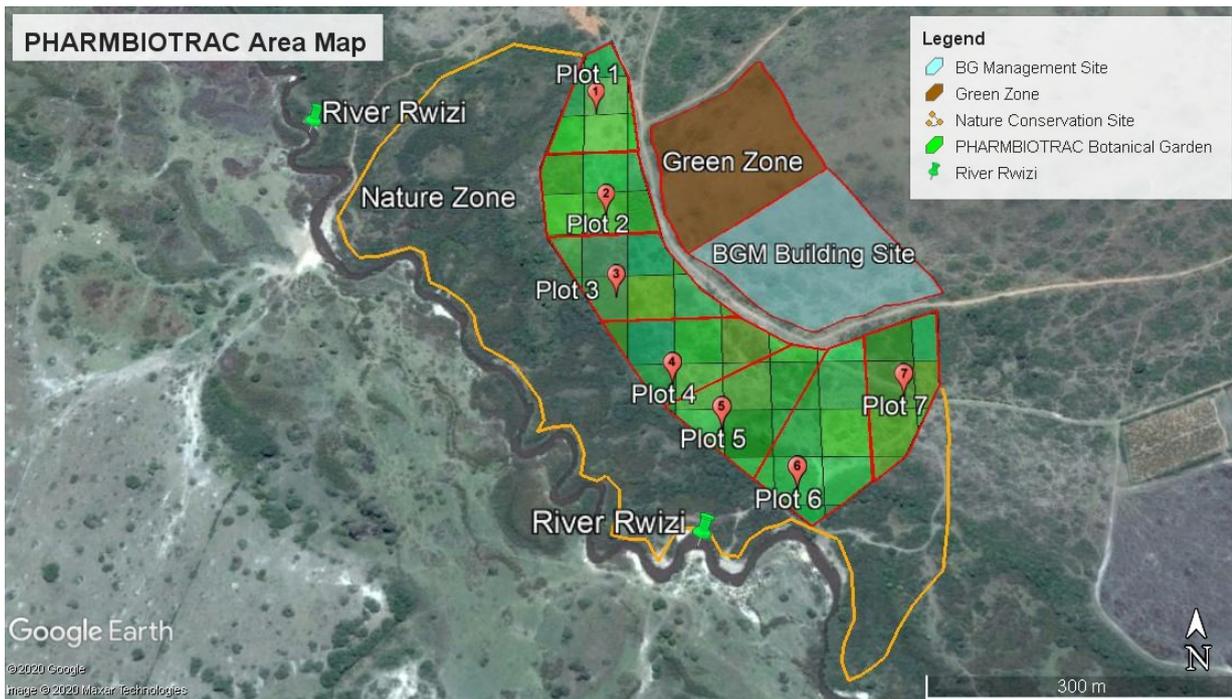


Figure 2: the location of the 2 campuses (Kihumuro and MUST main Campus)



*Botanical Garden establishment area magnified. The borderline (red line) facing the river is outside the river bank reserve (demarcated by National Environmental Authority) concrete pillars. Allocation is accordingly to the MUST Kihumuro Campus Master Plan.*



*Figure 3: Main Office Building where PHARMBIOTRAC Offices are located at MUST Kihumuro Main Campus (March 2021 occupies right top wing of the building)*



### B4. Implementation & Governance

- 1. Mbarara University of Science and Technology implements the PHARMBIOTRAC an Africa Centers of Excellence project.** Further, administrative capacity, from the institutions' central administration and departments assists with the fiduciary tasks. The PHARMBIOTRAC TEAM is constituted led by a Center leader (Dr. Casim Umba Tolo) who is a recognized educator/researcher and supported by the Deputy Centre Leader / Principal Investigator, different Centre Chairs within PHARMBIOTRAC and faculty from departments directly involved. The university is responsible for the implementation of the environment management plan.
- 2. The Uganda government constituted a National Steering Committee through the ministry or agency responsible for higher education.** It is tasked with a semi-annual review of performance and implementation support, including approvals of withdrawal applications and implementation planning (but with no day-to-day implementation or approvals). This committee includes members from Ministry of Finance, as well as relevant line ministries based on the focus area of PHARMBIOTRAC (e. g health): PHARMBIOTRAC together with the management of Mbarara University of Science and Technology comply with the national review committee's work plan as appropriate.
- 3. Has International Scientific Technical Advisory Board (ISTAB) (7persons),** comprised of internationally recognized professionals from various fields, provide independent advice and external review, and were appointed on their personal capacities since October 10, 2017, They hold meetings once every year at MUST to execute their duty, Inaugural meeting was held from 13-15.11, 2017 during ACE II Launch Uganda.
- 4. The PHARMBIOTRAC Steering Committee provides overall guidance and oversight for the project.**



### C. Environmental screening, assessment and management and World Bank applicable environment policies

#### C1. Environmental impacts are expected to be low to moderate

For PHARMBIOTRAC, the Environmental Assessment category is B (Partial Assessment), and OP/BP 4.01 (Environmental Assessment) is triggered. There will be some rehabilitation and extensions of the selected institutions. There is no new land acquisition or new construction for PHARMBIOTRAC.

In general, the center focuses on quality enhancements of teaching and research, which primarily requires "softer items" i.e. faculty and curriculum development, and learning resources, while re-construction is less than 10 percent of the funding. Further, ESMP has been prepared and disclosed to manage environmental and social impacts based on the submitted proposals. The civil works for refurbishment are minor and localized that they can be guided by national and local laws and procedures, and therefore no ESMP has been developed. The prepared ESMP are disclosed in country and on the World Bank InfoShop. In addition, a general set of best practice guidelines for environmental and social management was disclosed in the region in the early stages of project preparation. The ESMP has undergone a public consultation on 13<sup>th</sup> January 2016, and the report is presented in Annex A.

#### C2. Environmental Management Approach

For PHARMBIOTRAC the attached EMP checklist has been completed and disclosed at the institutional website at later stage to comply with environmental and social safeguards.

### D. COVID-19 Pandemic Information and SOP Procedure (Brief)

A Joint MUST/Mbarara Regional Referral Hospital and Mbarara District Health Office COVID-19 Prevention Task Team was formed and met first on March 16, 2020 to develop a prevention plan for MUST/MRRH. The team comprised of the District Health Officer (representing the MOH), the Director - MRRH, the Dean of Students, Faculty of Medicine Leadership, Hospital Administrators, Clinicians, Epicentre and Faculty representatives.

The Task team is regularly informing students and staff about the COVID-19 Pandemic, the preventive measure using the Standard Operating Procedure SOP, guidelines provide by the Ministry of Health, <https://covid19.gou.go.ug>). Measures including;

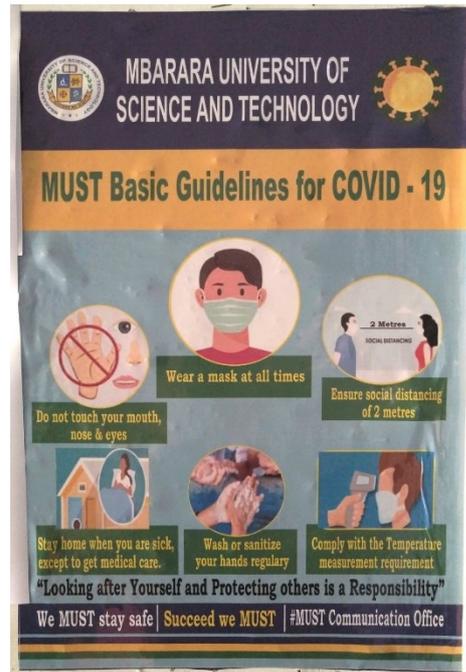
- Established a Joint MUST/MRRH/Mbarara DHO COVID-19 Prevention Task Team chaired by Assoc. Prof. Gertrude Kiwanuka, Chair with 9 teams of 3 people who are conducting awareness exercises on campus,
- Temperature check at the gate, wearing cloth-, medical- or FFP masks
- Hand washing facility with running water and soap at the entrance gate and strategic places within the campus,
- Hand sanitizers in offices & students are advised to come with a small bottle of hand sanitisers (required),
- Home office where possible to reduce number of staff on campus,
- Information provision via MUST website,
- Posters placed at prominent places and in each classroom (see photo below),
- Email messages/ alerts to all staff and students with general COVID-19 SOP and updates on regulations including mode of lectures, accessing campus, social distancing etc.



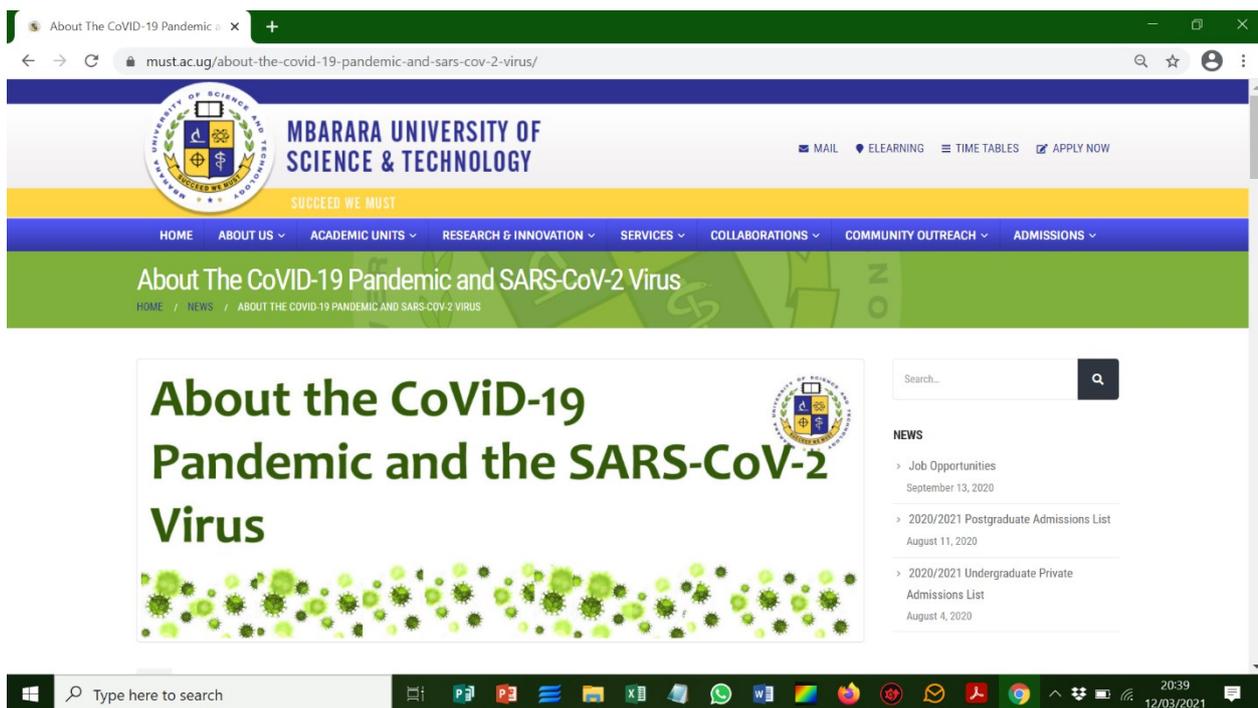
*Social distancing and wearing facemasks during a face to face planning meeting*



*Social distancing arrangement in a class room setting and wearing facemasks (e.g. during PhD defence)*



*COVID SOP Info Poster*



*MUST website with COVID-19 info: <https://www.must.ac.ug/about-the-covid-19-pandemic-and-sars-cov-2-virus/>*

### **E. Monitoring and reporting**

PHARMBIOTRAC has its own monitoring and reporting requirements for the ESMP in consultation with relevant national authorities. This is consolidated and reported through the general reporting requirements for the national review committee and the World Bank supervisory team to monitor on a regular basis at the online platform ACE2 Monitor available at the link, <https://ace2-monitor.eamode.com/>.



## Pharm-Biotechnology and Traditional Medicine Center (PHARMBIOTRAC)

Contact of the officer in charge of internal quality assurance and monitoring of implementation of PHARMBIOTRAC including ESMP:

Institution	EMP monitoring arrangements (name, title, contact information)
Mbarara University of Science and Technology (MUST), ACE II Name: Pharm-Bio Technology and Traditional Medicine Centre (PHARMBIOTRAC)	Eng. (Ms.) Anke Weisheit Co-Founder and Chair, Innovation & Business Management Pharm-Bio Technology and Traditional Medicine Center (PHARMBIOTRAC), Mbarara University of Science and Technology (MUST) Tel: +256-702-888096, WA: +256-772-788096 Email: <a href="mailto:aweisheit@must.ac.ug">aweisheit@must.ac.ug</a>

### Part II: ESMP Checklist for Activities



ESMP Checklist for Activities				
S/N	Center Name	ESMP required?	Issues	Mitigation Measures
1	Uganda – Pharm-Bio Technology and Traditional Medicine Centre (PHARMBIOTRAC)	Yes [ ] No [ <input checked="" type="checkbox"/> ]	<b>1. New construction</b> <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>	<b>Air Quality</b> <ol style="list-style-type: none"> <li>During interior demolition use debris-chutes above the first floor,</li> <li>Keep demolition debris in controlled area and spray with water mist to reduce debris dust,</li> <li>Suppress dust during pneumatic drilling/wall destruction by ongoing water spraying and/or installing dust screen enclosures at site,</li> <li>Keep surrounding environment (sidewalks, roads) free of debris to minimize dust,</li> <li>There will be no open burning of construction / waste material at the site,</li> <li>There will be no excessive idling of construction vehicles at sites.</li> </ol>
		Yes [ ] No [ <input checked="" type="checkbox"/> ]		<b>Noise</b> <ol style="list-style-type: none"> <li>Construction noise will be limited to restricted times agreed to in the permit,</li> <li>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> </ol>
		Yes [ ] No [ <input checked="" type="checkbox"/> ]		<b>Water Quality</b> <ol style="list-style-type: none"> <li>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> </ol>
		Yes [ ] No [ <input checked="" type="checkbox"/> ]		<b>Waste Management</b> <ol style="list-style-type: none"> <li>Waste collection and disposal pathways and sites will be identified for all major waste types expected from demolition and construction activities.</li> <li>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>Construction waste will be collected and disposed properly by licensed collectors</li> <li>The records of waste disposal will be maintained as proof for proper management as designed.</li> <li>Whenever feasible the contractor will reuse and recycle appropriate and viable materials (except asbestos)</li> </ol>



## Pharm-Biotechnology and Traditional Medicine Center (PHARMBIOTRAC)

		Yes [ <input type="checkbox"/> ] No [ <input type="checkbox"/> ]	<b>2. Handling / management of medical waste</b> <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 off-site disposal of medical waste</li> </ul>	Infrastructure for medical waste management <ul style="list-style-type: none"> <li>(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:             <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> </li> </ul>
		Yes [ <input type="checkbox"/> ] No [ <input type="checkbox"/> ]  Yes [ <input type="checkbox"/> ] No [ <input checked="" type="checkbox"/> ]	<b>3. Building rehabilitation</b> <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> <b>4. New construction</b> <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>	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 (sidewalks, 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>



## Pharm-Biotechnology and Traditional Medicine Center (PHARMBIOTRAC)

		Yes [ <input checked="" type="checkbox"/> ] No [ <input type="checkbox"/> ]	<b>5. Building rehabilitation</b> <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>	Noise (a) Construction noise will be limited to restricted times agreed to in the permit 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
		Yes [ <input checked="" type="checkbox"/> ] No [ <input type="checkbox"/> ]		Water Quality (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. (b) The statutory 100 meters river bank buffer zone has been respected at the botanical garden site
		Yes [ <input checked="" type="checkbox"/> ] No [ <input type="checkbox"/> ]		Waste Management (a) Waste collection and disposal pathways and sites will be identified for all major waste types expected from demolition and construction activities. (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. (c) Construction waste will be collected and disposed properly by licensed collectors (d) The records of waste disposal will be maintained as proof for proper management as designed. (e) Whenever feasible the contractor will reuse and recycle appropriate and viable materials (except asbestos)
		Yes [ <input checked="" type="checkbox"/> ] No [ <input type="checkbox"/> ]	<b>6. Handling / management of medical waste</b> <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 off-site disposal of medical waste</li> </ul>	Infrastructure for medical waste management (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: <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:               <ol 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> </ol> </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>



## Pharm-Biotechnology and Traditional Medicine Center (PHARMBIOTRAC)

		Yes [ ] No [✓]	<b>7. Hazardous or toxic materials</b> <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>	Toxic / hazardous waste management <ol style="list-style-type: none"> <li>Temporarily storage on site of all hazardous or toxic substances will be in safe containers labeled with details of composition, properties and handling information</li> <li>The containers of hazardous substances should be placed in a leak-proof container to prevent spillage and leaching</li> <li>The wastes are transported by specially licensed carriers and disposed in a licensed facility.</li> <li>Paints with toxic ingredients or solvents or lead-based paints will not be used</li> </ol>
		Yes [✓] No [ ]	<b>8. Handling / management of medical waste</b> <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 off-site disposal of medical waste</li> </ul>	Infrastructure for medical waste management <ol style="list-style-type: none"> <li>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:             <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:                 <ol style="list-style-type: none"> <li>Clinical waste: yellow bags and containers</li> <li>Sharps – Special puncture resistant containers/boxes</li> <li>Domestic waste (non-organic): black bags and containers</li> </ol> </li> <li>Appropriate storage facilities for medical waste are in place; and</li> </ul> </li> <li>If the activity includes facility-based treatment, appropriate disposal options are in place and operational</li> </ol>
		Yes [✓] No [ ]	<b>9. Hazardous or toxic materials</b> <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>	Toxic / hazardous waste management <ol style="list-style-type: none"> <li>Temporarily storage on site of all hazardous or toxic substances will be in safe containers labeled with details of composition, properties and handling information</li> <li>The containers of hazardous substances should be placed in an leak-proof container to prevent spillage and leaching</li> <li>The wastes are transported by specially licensed carriers and disposed in a licensed facility. Paints with toxic ingredients or solvents or lead-based paints will not be used</li> </ol>



## Pharm-Biotechnology and Traditional Medicine Center (PHARMBIOTRAC)

		Yes [ <input type="checkbox"/> No [ <input checked="" type="checkbox"/>	<b>10. Individual wastewater treatment system</b>	Water Quality (a) The approach to handling sanitary wastes and wastewater from building sites (installation or reconstruction) must be approved by the local authorities (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 (c) Monitoring of new wastewater systems (before/after) will be carried out
--	--	--	---	---



**Annex A: Public consultations**

**Table 1: Stakeholders categories present at the public consultation**

<b>Country – Center of Excellence</b>	<b>Date of consultative meeting</b>	<b>Stakeholders present</b>	<b>Issues raised</b>	<b>Response to the issues</b>
<b>Uganda</b>  Pharm-Bio Technology and Traditional Medicine Centre (PHARMBIOTRAC)	13 <sup>th</sup> January 2016	<ul style="list-style-type: none"> <li>• Local Community Leaders,</li> <li>• Traditional Medical Practitioners</li> <li>• Bio-Medical Practitioners</li> <li>• Politicians</li> <li>• Local Government leaders</li> <li>• Religious Leaders</li> <li>• National Environment Management Authority</li> <li>• Business Community</li> <li>• District Health Officer</li> <li>• National Agricultural Research Organization Officer</li> <li>• Project Partners</li> <li>• University Leadership</li> <li>• Academician</li> <li>• National Water and Sewerage Corporation</li> </ul>	Table 2 in Annex A	Table 2 in Annex A



**Table 2: Issues that arose during a public consultative workshop to discuss the EMP of ACE II Project “Pharm-Bio Technology and Traditional Medicine Centre (PHARMBIOTRAC)” held on 13<sup>th</sup> January 2016 at MUST**

Name	Environmental issues raised	Suggestions for mitigation	Social impact issues raised	Suggestions for mitigation
Didas Tabaro	Some plants may not be environmentally friendly	Environmental impact assessment	Failure to differentiate traditional meds from spirits	Involvement of religious and local leaders in project planning
Not Indicated	Preservation of local plant species	.....	Fear to disrupt social set up of traditional healers.	Adoption of trainees in existing traditional practices
Julius Tumusiime	Environmentally hazardous packaging materials	Follow standards for packaging that are healthy	Misunderstanding Biotech as GMOs only	Regular training with simplified models to improve understanding
Adrian Mwesigye	Pollution of water and air due waste disposal	- Use professional disposal recommended by NEMA - Use of incinerators	Conflict with traditional healers who prefer to remain mysterious	- Sensitization to bring them on board - Use religious leaders in sensitization
Ephraim Tumwujukye	- Purification of rain water for consumption - Waste from plant extracts - Soil erosion	- Preferably use piped water - proper waste disposal techniques	- Introduction of invasive species - Exposure to poisonous plants - Traditional knowledge erosion - Restricted access by locals	Networking with the communities to create awareness for the project and how they will benefit from it
Dennis Amwine Kizinduka	- Extinction of some herbs - Waste management - Noise pollution due to the plant	- Domestication of some herbs on site and in communities - Procurement of appropriate tools to use	- Perceived competition from existing herbalists - Some religions are biased against traditional medicines	- Train existing herbalists to become professional and inclusive in project - More sensitization needed to reduce bias on herbal meds
Robinah Florah Nakakeeto	Waste management and disposal	Use standardized waste management techniques	Concealing information due to fear of loss of ownership	Continuous engagement of all stakeholders in project implementation
Zakariah Gombekwa	Loss of habitat due to over exploitation	Planting medicinal plants	Exposure of children to some plants that may harm them	Community education and involvement
Nuwamanya Kalanzi George	Destruction of the environment	Plant trees with medicinal properties to protect environment	Completion with traditional healers/herbalists	Traditional healers should be given incentives for sharing knowledge



## Pharm-Biotechnology and Traditional Medicine Center (PHARMBIOTRAC)

Name	Environmental issues raised	Suggestions for mitigation	Social impact issues raised	Suggestions for mitigation
Ayub Ssali	Few medicinal plants available	Introduce plants from abroad that are medicinal	Lack of political backing of the project	Involve local and national leaders in policy formulation
Dennis Zami Atibuni	<ul style="list-style-type: none"> <li>- Over use of some species</li> <li>- Over cultivation of some species</li> <li>- Difficulty of protecting species in the wild</li> <li>- Wastes</li> </ul>	<ul style="list-style-type: none"> <li>- training and sensitization of people</li> <li>- Domestication and cultivation</li> <li>- contracting farmers (out growers)</li> </ul>	<ul style="list-style-type: none"> <li>- Fear of putting TMPs out of business</li> <li>- Penetrating the belief system and knowledge base</li> <li>- Concealing of info on some traditional meds</li> <li>- Dosage issues</li> </ul>	<ul style="list-style-type: none"> <li>- Botanical gardens</li> <li>- Sensitization</li> <li>- Pretesting concentrates</li> </ul>
Peace Tindyebwa	<ul style="list-style-type: none"> <li>- Soil erosion and sedimentation in the river</li> <li>- Introduction of weed species</li> </ul>	<ul style="list-style-type: none"> <li>- Soil and water conservation measures be put in place</li> <li>- Screening all species</li> </ul>	<ul style="list-style-type: none"> <li>- Phobia for strange species</li> <li>- cultural beliefs and myths against certain species</li> </ul>	<ul style="list-style-type: none"> <li>- Training and sensitization</li> <li>- Improve on the branding of products</li> </ul>
Matthias Magoola	Destruction trees/forests and endangered species	Planting herbal gardens from which harvesting can be done	Global warming due to destruction of trees	Domestication and cultivation of medicinal plants
Celestine Barigye	<ul style="list-style-type: none"> <li>- Weeds</li> <li>- Distance from the river</li> <li>- Special conditions needed</li> </ul>	<ul style="list-style-type: none"> <li>- Isolating these plants strictly</li> <li>- Use of greenhouses</li> </ul>	<ul style="list-style-type: none"> <li>- Contamination of local plants</li> </ul>	Isolation, use of green houses and establishment of river banks (buffer zones)
Viola Nilah Nyakato	Over utilization of natural resources	<ul style="list-style-type: none"> <li>- Value addition</li> <li>- Stakeholder networks</li> </ul>	<ul style="list-style-type: none"> <li>- changing values of traditional healers</li> <li>- creating competition</li> </ul>	Skills and knowledge imparting
Juliet Mwanga Amumpaire	Creation of imbalance due to depletion of plants	<ul style="list-style-type: none"> <li>- Identify special groups to grow some species</li> <li>- Collaboration with environmentalists</li> </ul>	<ul style="list-style-type: none"> <li>- reduce utilization of traditional healers causing them psychological torture</li> </ul>	Incorporation of THs in the early stages collaborating with them as the experts
Francis Ndyaguma	Living gene banks may affect surrounding plants	Background information should be acquire before any introductions	Disagreements between THs and medics during research	Meetings be organized for researchers before research activity
Elvis Muhinda	<ul style="list-style-type: none"> <li>- Waste management</li> <li>- Pollution especially noise</li> </ul>	<ul style="list-style-type: none"> <li>- Incinerators and standard waste management means</li> </ul>	<ul style="list-style-type: none"> <li>- Over production of some plants resulting in lack of market</li> </ul>	<ul style="list-style-type: none"> <li>- Contracting farmers to produce specified amounts</li> </ul>



## Pharm-Biotechnology and Traditional Medicine Center (PHARMBIOTRAC)

Name	Environmental issues raised	Suggestions for mitigation	Social impact issues raised	Suggestions for mitigation
		- Silencers in machinery	- Out competing THs	- Sensitivity to local herbalists and mean of coexistence.
Samuel Maling	Live animals may escape causing environmental problems	All animals be restricted to animal houses (enclosure)	Means of transportation from collaborating countries/institute	Use appropriate transfer materials
Not Indicated	- Over exploitation of some species in the wild - Biohazard chemicals/material	- Conservation and propagation - Proper lab use practices	- Toxic plants	- Plant far from water source and restricted areas from humans
Maud Kamatenesi	- Habitat change - Noise from machines	- Use indigenous species only - Use sound proof walls	- Job creation - Waste materials - Religious bias against herbs	- People benefit - Proper waste disposal - Encourage religious leaders and involve them

**Table 3: Key project activities itemized as per project sub-component with ESMP Issues and Planned Mitigation Measures**

ESMP	Project Sub-components	Key Activities	Issues	Mitigation Measures
NO	5.1 Learning excellence	Benchmarking of universities and institutes	<b>Environmental:</b> Pollution <b>Social:</b> Social-cultural behavior	<ul style="list-style-type: none"> <li>• Using the shortest / direct route possible in economy class.</li> <li>• Using vehicles with low carbon emission.</li> <li>• Staff will be briefed on socio cultural norms and etiquette of destination location.</li> </ul>
		Attracting specialized faculty	<b>Environmental:</b> Pollution <b>Social:</b> Social-cultural behavior	<ul style="list-style-type: none"> <li>• Using the shortest / direct route possible,</li> <li>• Reduce number of flights: organizing longer visiting sessions per partner</li> <li>• Organize meetings and teaching back to back</li> <li>• Using vehicles with low carbon emission.</li> <li>• Visiting faculty will be briefed on socio cultural norms and etiquette of Uganda in line with the Public Service Code of conduct and Ethics.</li> </ul>



## Pharm-Biotechnology and Traditional Medicine Center (PHARMBIOTRAC)

ESMP	Project Sub-components	Key Activities	Issues	Mitigation Measures
		Training MSc/PhD students and graduates	<p><b>Environmental:</b> Dust generation using blackboard and chalk</p> <p><b>Social:</b> Accessibility of facilities by physically challenged persons Social-cultural behavior</p>	<ul style="list-style-type: none"> <li>• Training facilities will be equipped with white boards and LCD projectors to provide dustless teaching environment</li> <li>• Buildings are accessible with ramps and lifts</li> <li>• Faculty will be briefed on socio cultural norms and etiquette of Uganda and the region.</li> </ul>
		Improved facilities (Building rehabilitation)	<p><b>Environmental:</b> Site specific vehicular traffic Increase in dust and noise from demolition and/or construction Construction waste</p>	<p><b>Air Quality</b></p> <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 (sidewalks, 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> <p><b>Noise</b></p> <ul style="list-style-type: none"> <li>(a) Construction noise will be limited to restricted times agreed to in the permit 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> <p><b>Water Quality</b></p> <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> <p><b>Waste Management</b></p> <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> </ul>



## Pharm-Biotechnology and Traditional Medicine Center (PHARMBIOTRAC)

ESMP	Project Sub-components	Key Activities	Issues	Mitigation Measures
				(c) Construction waste will be collected and disposed properly by licensed collectors (d) The records of waste disposal will be maintained as proof for proper management as designed. Whenever feasible the contractor will reuse and recycle appropriate and viable materials (except asbestos)
		Industry collaboration	License status (company act and NEMA act)  Packing materials for products	<ul style="list-style-type: none"> <li>• Student hosting companies /industries legal status checked and placement space evaluated before placement</li> <li>• Usage of National Drug Authority (NDA) standards of human and animal medical products packaging</li> </ul>
	5.2 Research excellence, predominantly student centered applied research	Use of laboratory chemicals, reagents and animals	<p><b>Environmental:</b> Leakage of laboratory chemicals, reagents.</p> <p>Escape of laboratory animals</p> <p><b>Social:</b> Changing rooms Sanitary facilities</p>	<ul style="list-style-type: none"> <li>• Practice Good Laboratory Practices (GLP)</li> <li>• Accreditation of laboratory</li> <li>• Conduct regular trainings and drills in GLP</li> <li>• Equip laboratories with appropriate safety cabins and drainage system</li> <li>• Appropriate safety equipment's (fire extinguisher, eye wash, emergency showers, Smoke/fire detectors</li> <li>• Well designed and protected animal house to prevent animal from escape</li> <li>• Separate changing rooms and sanitary facilities provided for different genders</li> </ul>
			Waste Management	<ul style="list-style-type: none"> <li>• Incinerator in place</li> <li>• Special facilities for segregated waste (including soiled instruments “sharps”, and human/ animal tissue or fluids) from other waste disposal: <ul style="list-style-type: none"> <li>- Clinical waste: yellow bags and containers</li> <li>- Sharps - Special puncture resistant containers/boxes</li> <li>- Other waste (non-organic): black bags and containers</li> </ul> </li> <li>• NB: Appropriate storage facilities for medical waste are in place</li> </ul>



## Pharm-Biotechnology and Traditional Medicine Center (PHARMBIOTRAC)

ESMP	Project Sub-components	Key Activities	Issues	Mitigation Measures
		<p>TM research clinics established</p> <p>Joint TMPs and community programs</p> <p>Patents and licensed products</p> <p>Collaborative projects initiated</p>	<p><b>Environmental:</b> Over-utilization of medicinal plants</p> <p><b>Social:</b> Utilization of Indigenous and community knowledge and materials</p> <p><b>Environmental/ Social:</b> Transfer of materials</p>	<ul style="list-style-type: none"> <li>• Domestication of medicinal plants (ex-situ conservation and usage)</li> <li>• Establishment of living gene bank</li> <li>• Establishment of tree and plant nursery and providing planting materials</li> <li>• Training in sustainable harvesting and post-harvest handling</li> <li>• Training in good herbal medicine production practices to increase effectiveness and product losses</li> <li>• Obtain ethical clearance / informed consent</li> <li>• Access and benefit sharing agreements signed before commencement of research</li> <li>• Sharing outcome with Knowledge Holders</li> <li>• Training Traditional Health Practitioners in good clinical practice, record keeping, herbal medicine cultivation and medicine making</li> <li>• Providing economic incentives to knowledge holders and communities</li> <li>• Develop and sign Memoranda of Understanding with partnering organizations</li> <li>• Signing of material transfer agreements provided by national guidelines e.g. Uganda National Council for Science and Technology, National Environmental Management Authority</li> </ul>
		<p>Establishment of living gene bank and tree nursery</p>	<p>Temporary biodiversity loss (bush clearance for living gene bank)</p> <p>Invasive species</p> <p>Silting of riverbanks</p> <p>Habitat exhaustion</p>	<ul style="list-style-type: none"> <li>• Planting high diverse living gene bank for ex-situ conservation large enough to build a micro biotope,</li> <li>• Apply appropriate containment procedure (seed maturation hindrance, rooting),</li> <li>• Observing NEMA guidelines on protecting river bank (100m buffer zone),</li> <li>• Sustainable wild crafting technologies and practices accordingly with Good Wild Crafting guidelines,</li> </ul>



## Pharm-Biotechnology and Traditional Medicine Center (PHARMBIOTRAC)

ESMP	Project Sub-components	Key Activities	Issues	Mitigation Measures
	5.6 Regional and national academic partners	Community outreach	<p><b>Social:</b> Stakeholder suspicious of center operation</p> <p>Accessibility to research findings</p>	<ul style="list-style-type: none"> <li>• Conducting sensitizing workshops involving opinion leaders like religious leaders, political leaders, herbalist associations, business community,</li> <li>• Conducting regular research dissemination conferences and participating in regional, national and international exhibitions,</li> <li>• Publications (Articles, brochures, training materials, local newspapers, Radio, TV, internet, social media),</li> </ul>
	5.3 Quality Assurance 5.4 Equity dimensions 5.5 Attracting regional students and academic staff	<p>Recruiting / attracting high talented graduate students and staff</p> <p>Graduates produced</p>	<p><b>Social:</b> Highly qualified candidates not accessing opportunities Employability</p>	<ul style="list-style-type: none"> <li>• Advertising calls in broad spectrum channels – national, regional and international</li> <li>• Fair and non-biased selection procedure, fulfilling the quotas (gender and regional representation),</li> <li>• Graduate with employable skill set produced,</li> <li>• Graduate trained in entrepreneurship and self-employment,</li> <li>• Regular tracer studies with employers to adjust training curriculum to employer’s needs,</li> <li>• Provide career guidance,</li> </ul>
	5.7 Regional and national sector partners including the private sector 5.8 International academic partners	Technology transfer,	<p>Environmental: Out dated technologies</p> <p>Intellectual Property Benefit sharing Licensing</p>	<ul style="list-style-type: none"> <li>• Equipment procured in line with current good laboratory practices and current good manufacturing practices</li> <li>• Select equipment with good after sales and maintenance services available</li> <li>• Develop and sign Memoranda of Understanding with partnering organizations</li> <li>• Signing of technology transfer agreements provided by national guidelines e.g. Uganda National Council for Science and Technology, National Environmental Management Authority</li> </ul>
	5.9 Management and governance	Robust, efficient and transparent	<b>Social:</b>	<ul style="list-style-type: none"> <li>• Employment in line with university and government human resource manuals and regulations</li> </ul>



## Pharm-Biotechnology and Traditional Medicine Center (PHARMBIOTRAC)

ESMP	Project Sub-components	Key Activities	Issues	Mitigation Measures
		governance of PHARMBIOTRAC	Gender and equity bias	
		ICT based governance and management systems established	<b>Environment:</b> e-waste	<ul style="list-style-type: none"> <li>• Procurement of new and updated e-technologies with upgrade options,</li> <li>• State of art e-conferencing facility installed (30 seater) at PARMBIOTRAC Boardroom.</li> </ul>
	5.10 Sustainable financing	Fee charged on training of herbalists and TM practitioners, MSc. and PhD students Sourcing research grants from donors and private sector	<b>Social:</b> High costs of training and services	<ul style="list-style-type: none"> <li>• Charge affordable fees,</li> <li>• Provide value for money services,</li> <li>• Continuous sourcing for scholarships and Research &amp; Development funds,</li> <li>• Provide applicable skills appropriate to the trainees.</li> </ul>
		Sale of high value TM products produced in small scale produced by the center	<b>Environment:</b> Packing materials  <b>Social:</b> Affordability	<ul style="list-style-type: none"> <li>• Provide environmental friendly packing options,</li> <li>• Use of locally acquired materials and inputs,</li> <li>• Appropriate pricing structure.</li> </ul>
		Vibrant Business and fundraising arm at the center including lobbying	<b>Environmental:</b> Pollution  <b>Social:</b> Social-cultural behavior	<ul style="list-style-type: none"> <li>• Using the shortest / direct route possible in economy class,</li> <li>• Using vehicles with low carbon emission,</li> <li>• Staff will be briefed on socio cultural norms and etiquette of destination location.</li> </ul>
	5.11 Monitoring and Evaluation System	Design and implementation of strategic plan	<b>Environmental:</b> Pollution  <b>Social:</b> Social-cultural behavior	<ul style="list-style-type: none"> <li>• The M&amp;E team ensure that all project activities are compliant with national and international guidelines,</li> <li>• Using vehicles and equipment with low carbon emission,</li> <li>• Staff will be briefed on socio cultural norms and etiquette of destination location.</li> </ul>

**Annex B: Public Consultation Workshop Participants list:**



Pharm-Bio Technology and Traditional Medicine Centre (PHARMTRAC),  
Mbarara University of Science Technology,  
**Public Consultative Workshop on Environmental and Social Management Plan,**  
Date: 13<sup>th</sup> January 2016, Venue: Kihumuro, MUST



**Participant Registration Form** Please fill out this form and hand to the registration desk personnel

SN	Name/ Title	Sex	Institution & Department	Telephone/Email	Signature
1	Tindyebwa Peace	F	Bishop Stuart University	0772622022 us@bsu.ac.ug.	<i>Tindyebwa</i>
2	Muzira Robert	M	NARO	0772472173	<i>Muzira</i>
3	Dr. Inkuboka Moses	M	NARO	0772593261	<i>Inkuboka</i>
4	Cion Lelwa ZB	M	Rukarame	0776956580	<i>Cion</i>
5	MUSTARDA ECVIS	M	K.C.I Kinyonyo	0704573373	<i>Mustarda</i>
6	TUMWIDUKWE E	M	Rukarame	0750439024	<i>Tumwidukwe</i>
7	Dr. Muganyi G	M	FOM	0772543238	<i>Muganyi</i>
8	Robinah-f. Nakakubo	F	Planning (MUST)	0782818811	<i>Robinah</i>
9	Bernard Kankubwa	M	IMTS	0752504030	<i>Bernard</i>
10	Angella Nakato	F	DOs	0772692674	<i>Angella</i>

Pharm-Bio Technology and Traditional Medicine Centre (PHARMTRAC), Mbarara University of Science & Technology, P.O. Box 1410, Mbarara, Uganda,  
Tel: +256 772 837055/ 711-837055, E-Mail: tolocas@must.ac.ug, Web: <http://www.must.ac.ug>



# Pharm-Biotechnology and Traditional Medicine Center (PHARMBIOTRAC)



Pharm-Bio Technology and Traditional Medicine Centre (PHARMTRAC),  
 Mbarara University of Science Technology,  
**Public Consultative Workshop on Environmental and Social Management Plan,**  
 Date: 13<sup>th</sup> January 2016, Venue: Kihumuro, MUST



## Participant Registration Form Please fill out this form and hand to the registration desk personnel

SN	Name/ Title	Sex	Institution & Department	Telephone/Email	Signature
1	Rev. Dennis Anwine K.	M	Akoole Diocese Education Dept	0772633700 mwndennis@gmail.com	
2	Fr. Adrian Muresya	M	Mbarara Archdiocese	0782617955 arm@must.ac.ug	
3	Dennis Zami A.	M	Nyamitanga Paroish Mbr Archdiocese	0782309530 zamidennis7@gmail.com	
4	MAGoola MATTHEW	M	DE: GROUP	0756577951	
5	Maling Samuel	M	FOM - MUST	0712200224	
6	Juliet Nwanga Amupfe	F	EPICentre	0793325748	
7	Viola N Nyawuta	F	HR - MUST	0772982535	
8	Julius Tumusiime	M	MUST - Biology	0785 886136	
9	Dr. Annabella H Ejik	F	MUST / CS	0772571444	
10	Prof Amon G. Agaba	M	FOM - MUST	0701482845 agaba@must.ac.ug	

Pharm-Bio Technology and Traditional Medicine Centre (PHARMTRAC), Mbarara University of Science & Technology, P.O. Box 1410, Mbarara, Uganda,  
 Tel: +256 772 837055/ 711-837055, E-Mail: tolocas@must.ac.ug, Web: <http://www.must.ac.ug>



# Pharm-Biotechnology and Traditional Medicine Center (PHARMBIOTRAC)



Pharm-Bio Technology and Traditional Medicine Centre (PHARMTRAC),  
Mbarara University of Science Technology,  
**Public Consultative Workshop on Environmental and Social Management Plan,**  
Date: 13<sup>th</sup> January 2016, Venue: Kihumuro, MUST



## Participant Registration Form Please fill out this form and hand to the registration desk personnel

SN	Name/ Title	Sex	Institution & Department	Telephone/Email	Signature
1	Y.M.M. HOD NUNAMANTA GEORGE	M	MUST	0774436240	<i>[Signature]</i>
2	David Kashaija	M	MUST	dkashaija@must.ac.ug	<i>[Signature]</i>
3	Eng C. Obua	M	MUST	0712210937	<i>[Signature]</i>
4	Kizito Indira	M	MUST	0772690953	<i>[Signature]</i>
5	NAIGAGA OLIVE	F	NWSC	0751115370	<i>[Signature]</i>
6	Mohereza John Innocent	M	MUST	0712285193	<i>[Signature]</i>
7	Munamungu Patrick	M	MUST	0752203593	<i>[Signature]</i>
8	BARYANTUMBA T.M	M	Mbarara MC	0772601067	<i>[Signature]</i>
9	Dr. Casim U. TOW	M	MUST	0772837055	<i>[Signature]</i>
10	Eng. Anke Weisheit	F	Excel Hort Consult	aweisheit@excelhort.de 0772888096	<i>[Signature]</i>

Pharm-Bio Technology and Traditional Medicine Centre (PHARMTRAC), Mbarara University of Science & Technology, P.O. Box 1410, Mbarara, Uganda,  
Tel: +256 772 837055/ 711-837055, E-Mail: tolocas@must.ac.ug, Web: <http://www.must.ac.ug>



# Pharm-Biotechnology and Traditional Medicine Center (PHARMBIOTRAC)



Pharm-Bio Technology and Traditional Medicine Centre (PHARMTRAC),  
Mbarara University of Science Technology,  
**Public Consultative Workshop on Environmental and Social Management Plan,**  
Date: 13<sup>th</sup> January 2016, Venue: Kihumuro, MUST



## Participant Registration Form Please fill out this form and hand to the registration desk personnel

SN	Name/ Title	Sex	Institution & Department	Telephone/Email	Signature
1	Dr. Bangyeteletie	M	Mbarara RCH	0772415875 bangyeteletie@gmail.com	
2	Dr. Ogwang Patrick	M	Mbarara Univ	079817612 p27321@gmail.com	
3	Dr. Esther C Atukunda	F	MUST	0782949832 estheratukunda@gmail.com	
4	Jabaro Didas	M	Mbarara District local govt	tabandidas@yahoo.com	
5	Jabara Edung Sam	M	"	0772436723 jabaredungsam@gmail.com	
6	Maud Kamatenesi	F	Bishop Stuart Univ.	0772438905 vc@bsu.ac.ug	
7	Nuwxmantha George	M	Mbarara Cell RCH	0774436240	
8	Mukemwira Jecomes	M	Mbarara District local govt	0772482352 jecomesmucupurra@gmail.com	
9					
10					

Pharm-Bio Technology and Traditional Medicine Centre (PHARMTRAC), Mbarara University of Science & Technology, P.O. Box 1410, Mbarara, Uganda,  
Tel: +256 772 837055/ 711-837055, E-Mail: tolocas@must.ac.ug, Web: http://www.must.ac.ug



## Pharm-Biotechnology and Traditional Medicine Center (PHARMBIOTRAC)



Pharm-Bio Technology and Traditional Medicine Centre (PHARMTRAC),  
Mbarara University of Science Technology,  
**Public Consultative Workshop on Environmental and Social Management Plan,**  
Date: 13<sup>th</sup> January 2016, Venue: Kihumuro, MUST



### Participant Registration Form Please fill out this form and hand to the registration desk personnel

SN	Name/ Title	Sex	Institution & Department	Telephone/Email	Signature
1	Muhanguzi Fred	Male	MAZO	0772894768/0702	
2	Nuwamuzi EBOO	Male	B S U	0782292815	
3	BIRAKWATZ JAMES	Male	B S U	0773715648	
4					



## Pharm-Biotechnology and Traditional Medicine Center (PHARMBIOTRAC)



Pharm-Bio Technology and Traditional Medicine Centre (PHARMTRAC),  
Mbarara University of Science Technology,  
**Public Consultative Workshop on Environmental and Social Management Plan,**  
Date: 13<sup>th</sup> January 2016, Venue: Kihumuro, MUST



### Participant Registration Form Please fill out this form and hand to the registration desk personnel

SN	Name/ Title	Sex	Institution & Department	Telephone/Email	Signature
1	SSALI Ayub	m.	LCI	0753261495	
2	Theodora Naudu	F	MUST	0772821335	Tim Chonfontac
3	ADYAGUMA Francis M	M	MUST	0772685889	
4					



## **Annex C: Minutes of Public Consultation Workshop**

### **MINUTES OF THE PUBLIC CONSULTATIVE WORKSHOP TO DISCUSS EMP OF ACE II PROJECT: PHARMABIOTECHNOLOGY AND TRADITIONAL MEDICINE CENTER (PHARMBIOTRAC) HELD ON 13<sup>TH</sup> JANUARY 2016 AT KIHUMURO MAIN CAMPUS**

#### **Agenda**

1. Agenda
2. Communication from the chair (Vice Chancellor)
3. Communication from other participants (Vice Chancellor, Bishop Stuart University)
4. Participants introduction
5. Presentation of the PHARMATRAC to the participants
6. General discussion
7. Group work parallel sessions
8. Plenary session and Remarks from NEMA Officer
9. Remarks on Traditional Medicine
10. Closing remarks

#### **Min. 01/2016: prayer**

The opening prayer was led by Dennis Atibuni Zami, lay chaplain from Mbarara Catholic Archdiocese

#### **Min. 02/2016: Communication/remarks from the chair**

The Vice Chancellor Professor Celestino Obua welcomed the invited participants to the workshop.

He informed members that MUST is strong in science teacher education and medical education. He gave the background the ACEs highlighting the first phase in West Africa which started in 2013 with 19 centers running and now the phase for Eastern and Southern Africa for 23 centers have been conditionally selected. He informed the participants while PHARMBIOTRAC MUST has been conditionally selected, there are still steps to be accomplished before final acceptance and one of the steps is the need to provide environmental and social management plan. He informed the participant that MUST is a rural based university and its activities have direct impact of the rural masses. PHARMBIOTRAC activities will therefore greatly impact the rural masses and hence to need for a clear impact management plan. He called upon the participants to raise all the possible environmental and social issues related to project so that the project team and the participants can put in place an effective response and management plan.

#### **Min. 03/2016 Remarks from VC Bishop Stuart University (BSU)**

Prof. Maud Kamatensi, Vice Chancellor, Bishop Stuart University promised that they will work hand in hand together with her institution and Makerere University to support the project. There is need to expand networking so as to improve on traditional medicine.

She promised that BSU will give a big support as soon as the project starts. There is need for MoU with must so emphasize traditional medicine.

**Min. 04/2016** The project Centre leader Dr. Casim Umba Tolo gave more light on the project background and highlighted the workshop purpose and objectives.

**Min. 05/2016** The project Deputy Centre Leader/Principal Investigator Dr. Patrick Engeu Ogwang then made presentation on the PHARMATRAC project highlighting the following;  
**The project objectives**



- To strengthen the existing capacity to train highly skilled and specialized professionals and academicians,
- To strengthen the existing national and regional Universities,
- To develop models and framework for strengthening University industry linkage,
- To advance traditional medicine in communities through students and community/traditional medicine practitioners.

### **The project Activities**

- Establishment of world class learning and research facilities at the center,
- Attracting high quality academicians and experts from the region to the center,
- Attracting highly talented young students from the region,
- Engaging high quality academicians and industry experts from the USA, Europe, South Africa, India and the region visiting lecturers,
- Establishing high standard and adequately equipped laboratories at the center, herbaria and living gene banks at the center and in partner universities,
- Engaging sector partners (Industry and research institutions) in joint research and product development to add value to traditional medicine and pharm-biotechnology products to feed national, regional and international markets and
- Training and involving the communities in improving and sustainability utilizing medicinal biodiversity to improve quality of life and productivity of the rural populations in the region.

### **The expected project outputs and Impacts**

- Society benefits: Trained TM practitioners leading improved health,
- Governments: Facilitate the integration of TM in national health systems,
- Industries: Skilled man power in TM and biopharmaceutical research and products for commercialization, patents etc.,
- Academia and research institutions: Building capacity of staff (MSc and PhD).

**Min. 06/2016** The project Chair of Innovations and Business Eng. Anke Weisheit then gave the presentation of the examples of ESMP and guidelines for the workshop participants.

### **Min. 04/2016 General discussion**

#### **Issues of concern from the discussion were;**

- Site specific concerns,
- Economic incentives,
- Minimize habitant loss where we are getting those plants,
- Intellectual property rights,
- Strategic plan management and engagement of more stakeholders.



### Min 05/2016: Plenary Session (Group work 01)

Presenter: Dr. Moses Dhikusooka Tefula, NARO livestock scientist -

#### Topic: Environmental and Social Management Issues

Discuss the Environmental and social management plan of PHARMBIOTRAC with focus on environmental issues.

- Network and linkages (local, national and international for success of the project)
  - What issues related to joint research would we want to be considered?
  - Network: Local, National, international networks
1. Issues related to joint research. Since this is going to be a center of collecting plants of all kinds,
    - Care is to be taken to avoid plants from becoming a nuisance to the community,
    - Invasive species whose seeds may end up in the farm, the river, and go to other areas.
  2. Living Gene bank establishment and use location of the gene bank should be properly identified for confinement source of materials,
  3. Develop a screening process to avoid importing dangerous plants that are useful but have a risk of becoming a public nuisance,
  4. Precautions: Need for guidance on the type and characteristics of plants to be planted in this area, through literature search.

#### Social impact of these plants and mitigation

- Increasing access to these herbs,
- By involving herbalists into the project we will reduce the fear that MUST is a competitor,
- Through Sensitization: To ensure that they can open up and help them disclose what they know to help them avoid fear of cultural taboos,
- Encourage researchers to engage with practicing herbalists to help them to open up and share this knowledge socially,
- There is no displacement of people from their land,
- The local traditional healers will be economic empowered through engagements, trainings and demonstrations on how they can benefit from this project,
- Build consumer confidence by helping them have well packaged plant drugs/herbs,
- Botanical Garden will be accessible to the public in controlled fashion (opening period, group booking including individuals, visiting professional, school classes).

#### Kind of plants to use

- We plan to use local plant species from within Uganda since we have a rich bioflora to ensure we conserve all plant species,
- If it is necessary to research on plant materials from outside the country, then the necessary measures required for authorization shall be adhered to,
- Mitigation: involve local herbalists to plant them and maintain them in circulation, encourage them to earn a living,
- Arrange for importing these species and try to propagate them here-may be in a green house.



### Environmental issues

- Need for soil and water conservation guidelines from NEMA –gene bank to be located at least 100m from the river banks,
- Do greenhouse farming, since this weather here may not be friendly,
- Compartmentalize the gene bank for plants that may require isolation and group them according to their characteristics,

If this gene bank is put here how will we be sure that this gene bank does not affect the local communities?

### Mitigations

- Follows strict SOPs, drawn by research assistants, to avoid losing direction.

### Identify Joint research activities to be done

- Conduct research on the active ingredients in these herbs,
- Mitigate extinction of specific plants for sustainable management or harvesting of the plants i.e. for those that we take roots: so trainings on effective propagation as opposed to genetic engendering,
- Research on the appropriate dosages, harvesting methods, preservation methods, handling,
- Collaborative research with traditional healers, agriculturalists, pharmacists to label the products with the right ingredients,
- Standardizing of the dose rates and ensure the herbal products on market have the right ingredients & are prepared and packaged properly.

### In case of using animals

- Put in place SOPs to manage containing the animals to limit them from escaping.

### Network and linkages

- There is need to network with Institutes (Uganda chemotherapeutic industries),
- Research organizations – local, international in West Africa,
- Learning from other Centers of Excellence,
- Bring local authorities on board, Public Private partnerships,
- Sign MOUs with private sector like Dr. David Ssali of Dama Medicinal Herbs, renowned herbalist,
- Create websites, and join social networks.

### Group work parallel session 2

**Topic: Environmental and Social Management issues presented by Dr. Ogwang Engeu Patrick**

#### **(b). issues related to sustainability and utilization of herbal medicine and biodiversity.**

- Establish our own gardens,
- Competition from herbalists hence share information to reduce lack of knowledge,
- Traditional healers have now accepted and have come on board to share the knowledge on herbs,



- More trainings are required to speak one language in herbs,
- Churches around still doubt the traditional herbs,
- Church leaders to be brought to board for sensitization,
- To always combine several herbs for treatment with proper dosages.

**(c). Network and linkages (local, national and international for success of the Project.**

- Transfer of materials to other laboratories,
- Link to health professionals, religious leaders to traditional herbalists,
- Create good relationship with political leaders, for example LC's etc.,
- Making MoU for mediating people on networks to come out with one common goal,
- Create websites, and join different social networks,
- Sign MoU with private traditional herbalists like Dr. David Ssali of Dama Medicinal Herbs.

**Min. 06/2016 Remarks from Mr. Jeconias Musingwire, NEMA Officer**

He emphasized on articulation of information so as to save money for the University on various action plans. That the university should coordinate well with locals/community.

**Key issues from NEMA Officer**

1. Site specific environmental and social concerns,
2. Economic incentives for herbalists,
3. Minimize habitant loss where we get medicinal plants,
4. Intellectual property rights e.g. protection of human rights on environment or custodian of the knowledge,
5. Strategies of Habitat retention and post development restoration – maintenance and sustainability,
6. Manage habitant in psychological and ecological manner,
7. Systematic evaluation of the factor (species richness e.g. to know their species,
8. Reality,
9. Availability of the species,
10. Addressing appropriate natural habitat,
11. Well-articulated Monitoring and evaluation M&E Plan feedback for conservation outcome and give direction for mitigation,
12. Complimenting biodiversity improvement action of government,
13. 100m either site river banks should be untouched Opportunity to plant medicinal plant in Buffer zones.

**Min. 07/2016 General discussion on Traditional Medicine by participants:**

<b>Traditional Medicine</b>	<b>Mitigation</b>
Overutilization of Medicinal plants	Domestication of Medicinal plants and establishing living gene banks Provide seedlings and planting materials for communities
Farmer over-cultivating medicinal plants and displacing food crops	Contract Farming, only a portion of the farm can be used for Medicinal plant cultivation
Bad Traditional Medicine practice	Training in diagnostic and treatments
Fear of GMO introduction to community	Stakeholders informed no GMO will be introduced, <ul style="list-style-type: none"> <li>• Conduct open door weeks</li> <li>• stakeholder information session</li> </ul>
Packing materials	Describe standards of disposable
<b>Issues of sustainability</b>	<b>Mitigation</b>
Knowledge Utilization	Benefit sharing agreements Capacity building in record keeping
Who is owning the medicine Property of medicine	Be acknowledge for drug – property rights and benefit sharing rights
Dosage not known	Research can advise traditional healers in dosage and safety
Competition with traditional Medicine practitioners	Empowering Traditional medicine
Bringing on board religious leaders	Informing and engaging Traditional leaders to understand that this work is in line with cultural and religious norms
Negative attitude of allopathic medicine	Cooperation with medical practitioners
Confusion of Traditional Medicine	Clear Terminology used - using plants minerals and other tangible items
Changing status and role of TM practitioners	Is in line with the government initiative to build capacity
Industrialists	Benefit sharing agreements with industry
<b>Networks</b>	<b>Mitigation</b>
Transfer of Materials from various location and plants	Material Transfer agreements
Religious leaders / Medical Professionals	Bring together and de-mystify traditional medicine
Changing role / competing with NCSRL	Partnership
Political leaders	Policy formulation
Collaboration Conflicting Interest	MoU formulation on specific agreed terms

**Min. 08/2016 Closing remarks**

The Vice Chancellor, Mbarara University of Science and Technology thanked every stakeholder for active participation in the workshop and thereafter closed the workshop.



**Eng. Anke Weisheit**

Date: 13<sup>th</sup> January 2016



Chairperson  
**Dr. Casim Tolo Casim**

Date: 13<sup>th</sup> January 2016



Faculty of Medicine  
Mbarara University of Science & Technology,  
P. O. Box 1410, Mbarara, Uganda  
<http://www.must.ac.ug>



Pharm-Biotechnology and Traditional  
Medicine Center (PHARMBIOTRAC)

**ACE II**

Eastern and Southern Africa  
Higher Education Centers of Excellence Project



WORLD BANK GROUP