

***MALAWI: SUPPORT TO HIGHER EDUCATION, SCIENCE AND TECHNOLOGY  
(HEST) PROJECT***

***ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)***

***(P-MW- IAD-001)***

**The project is classified as Category II.** Mitigation measures have been prescribed for the effects of the rehabilitation and extension of existing 3 university campuses and 4 technical colleges. The seven institutions will have their learning environments improved through the provision of laboratories, workshops, classrooms, libraries with e-library sections, ICT centers, fiber optic and satellite internet access as applicable and minor renovations for sanitation facilities such as replacing faulty pumps and cleaning of ponds. All the structures will be Information and Communication Technology (ICT) compliant. Moreover, there will be no displacement of people by the project. The activities supported by the project will be taking place in existing institutions. The project's environmental issues and management/ mitigation measures are provided in the Environmental and Social Management Plan (ESMP) summary below.

***Brief description of the project and key environmental and social components:***

**The operation is an investment project.** It will assist in financing the implementation of activities to increase access and improve the quality and relevance of Higher Education, Science and Technology (HEST) composed of Higher Education (HE) and Technical, Entrepreneurship and Vocational education and Training (TEVET) delivery in Malawi to be implemented in seven (7) existing beneficiary institutions. The institutions are: the Polytechnic, Chancellor College both in the South, and Mzuzu University in the North (Higher Education) and the technical colleges: Lilongwe in the Central and Salima in the Central, Soche and Nasawa in the South. The project has four components and has a national coverage. The key environmental and social components of the project include; Providing ICT for Skills Development and Employability; Expanding Access to Quality and Relevant HEST; Building Human and Institutional Capacity for HEST and conducting an Impact Evaluation and setting up a Monitoring and Evaluation system including project management.

**The key environmental and social components are:**

- Increasing access to and use of ICT through enhanced facilities and services. **This component supports increased access to ICT and interconnectivity of Beneficiary Institutions. The project will help transform the education sector through increased access and utilisation of ICT and ensure sustainability.** It will help improve access to ICT in all the seven (7) institutions. Activities provided under this component are: The provision of ICT equipment in the seven institutions and in sister implementing agencies. Connectivity to the net will be improved by installing Fibre Optic Cable in these institutions that do not have it

yet. Internal connectivity will be enhanced by improving the Local Area Network and by the provision of wireless access points where required.

- **Expanding Access to Quality and Relevant HEST. This component will support the Improvement of Learning Areas; and provide Merit-Based Scholarships.** This will be achieved by making improvements of the learning environment through reduction of students' congestion, provide up-to-date equipment and books and fund merit based scholarships to encourage enrollment in Science and Technology related courses in HE and TEVET of which at least 40% of the beneficiaries will be females. Activities provided under this component are: construction and renovations as appropriate: ICT-Centres, libraries and e-libraries, workshops, classrooms, engineering laboratories and offices. The ICT-Centres will comprise an Internet café, accessible for the public and a small Business Centre, limited to one room to encourage exchange with the private sector. One or two workshops will be built in each of the technical colleges. They relate to boat building, bricklaying, welding and fabrication and to auto mechanics. Workshop and laboratory for one university will support their mining engineering programme. The project provides equipment for the above facilities replaces outdated workshop and laboratory equipment and supplies learning materials and books.
- **Improving Quality and Relevance of HEST and TEVET. This component will assist in efforts to improve the quality of teaching and learning in the project institutions by training and upgrading staff (lectures and instructors) in relevant trades.** The project will also fund the establishment of incubators in thematic areas of specialization for each institution to bridge the time lag between graduation and insertion into industry. To enhance HEST management, staff of the Ministries of Education and Labour as well as TEVETA will also be trained.
- **Impact Evaluation, Development of Monitoring and Evaluation System and Project Management. This component will conduct an Impact Evaluation; Establish an Enhanced Monitoring System and a Labour Market Information Management System (LMIMS); and Finance cost related to Project Management.** The impact evaluation will assess in both quantitative and qualitative terms the achievements of the HEST and the effect of the project intervention on ICT-based skills development in Malawi.

### **Major environmental and social impacts**

**The main environmental and social impacts anticipated include the following:**

#### **Positive Impacts:**

The Positive environmental and social impacts will include;

- (i) Increased capacity for the teaching of HEST and policy development.

- (ii) Improved school environment through: better school facilities and equipment; improved sanitation; a more environmental friendly environment; improved access for the disabled. The increased use of ICT after the project will reduce paper usage thus enhancing cleanliness of the institutions' grounds.
- (iii) Better opportunity for female and students from under served areas to access HEST.
- (iv) Increased opportunity for female instructors to upgrading their skills.
- (v) Social benefits for the surrounding communities through: immediate benefits through job creation during construction for skilled and unskilled laborers; permanent job creation through the increase of activity in the institutions; through the building of ICT-centres open to the public, communities and local businesses obtain access to Internet. The centres will act as an interface providing a meeting place for the school, the surrounding communities and the private sector and will empower the surrounding community.
- (vi) Anticipated increased earnings to the students who succeed in completing HEST training.
- (vii) Capacity building of school staff, workers and students in sustainable development including waste management, maintenance and sanitation.

### Potential Negative Impacts

#### **The Potential negative environmental impacts include:**

- (i) Possible pollution from workshop and laboratory waste;
- (ii) Accidents in workshops and laboratories; and
- (iii) During site clearance, demolition of existing buildings and construction of the facilities; the main environmental impacts will be typical for most building sites, namely loss of top soil and vegetation, the generation of dust, noise emissions and vibration, disposal of construction debris and general solid waste, disturbance of the public and hazards posed by construction work and traffic, sanitation and occupational health and safety concerns for construction workers.

### Enhancement and mitigation program

**The enhancement and mitigation program to address environmental issues was discussed and agreed.** The project team visited all the seven beneficiary sites. Preliminary site plans and designs were discussed. The institutions were sensitized on environmental issues and on sustainable building technologies. Localized sustainable energy and building technologies were discussed. The ESMP is being shared with the Department of Environmental Affairs of the Government of Malawi for its vetting, and the -appraisal mission already provided to the department the concept note with information on the likely environmental impacts of the works and the mitigation measures that will be put in place.

**The following mitigation measures represent the main outlines of the ESMP and will form an integral part of the project:**

(i) **Waste management**

The project will generate waste from workshops, laboratories and from the increased ICT activities. The project provides capacity building in waste management to identify each waste type in order to be able to store, handle, dispose of and monitor it in consultation with the municipalities. Disposal of outdated equipment and other materials will be done in accordance with Sections 44.7 and 4.10 of the GOM's National Environmental Policy (2004). The project will build incinerators and septic tanks where required.

(ii) **Security in workshops and laboratories**

The design proposals for the workshops and laboratories will include: emergency response facilities/equipment in case of accidents; a fire evacuation plan with fire fighting equipment and emergency exits; appropriate ventilation systems; pre-treatment facilities for wastewater and sewage before discharge amongst others.

(iii) **Construction activities**

During construction, land cut and landfill are to be reduced to minimum. In addition, steep slopes will be grassed or lined; top soil will be preserved and affected areas re-vegetated; movement of construction trucks and equipment will be limited; trucks carrying sand, cement and soil will be covered; use of sand and crushed stones will be regulated; and the construction site will be boarded.

The proposed buildings will fit on to the existing grounds. Safety of the workers and communities will be guaranteed through: providing Personal Protective Equipment (PPE) to the workforce; sensitizing the local communities about construction hazards and possible disruptions of traffic as well as utility services through signage and notices; and making arrangements for the workforce to access sanitation facilities. Diligence on the part of the contractors and proper supervision during construction are critical in mitigating adverse impacts. The contractors will comply with the relevant legislation stipulating occupational health and safety conditions. They will submit a Construction Site Safety Plan and employ a Safety Officer to ensure worker's safety on site.

(iv) **Other measures to improve the school environment.**

New facilities will be accessible for the disabled including the construction of wheel chair ramps where applicable. Chancellor College is renowned for accommodating disabled students. Site layout plans will include: landscaping,

roads and car parks; waste collection and storage areas; storm water drainage; stockpiling of topsoil; rehabilitation of worked areas; landscaping and replanting and sound proofed generator shed.

At completion of the project, most communication will be via the net and due to the connectivity within each and among all the institutions; physical movement to these centers by staff and students will be minimized resulting in reduced emissions, further reducing the negative impacts on climate change.

### *Climate change*

The project promotes sustainable energy and sustainable building technologies. The Polytechnic College researches on sustainable technologies and will play a leading role in the design process. Also, since ICT accumulates extra heat and uses electricity; the use of natural cooling techniques and renewable energy has been discussed as an alternative for using air-conditioning units. Hiring design consultants and engineers knowledgeable in sustainable technologies is recommended. Local firms will be encouraged to team up with renowned international firms in this field. The Ministry of Works has provided the already environmentally approved government designs on which the works for the project are based.

Malawi has a moderate sub-tropical climate with lower lying areas such as Salima being very hot in summer. Sustainable building technologies to be used here are: the use of natural light and ventilation, solar and wind energy, cooling by rock stores or using water from the lake, the use of grey and rainwater, amongst others. Education institutions have an exemplary function and should sensitize and enhance the students' knowledge on sustainable development by constructing "green" buildings.

The cost of buildings using sustainable building technologies is higher than those of conventionally designed buildings. Recurrent cost will however be drastically reduced due to the environmental measures that will be taken and the savings generated in energy, water, maintenance, operations, and health costs offer quick investment returns. Sustainable development will also be achieved through the conduct of a feasibility study at building design stage to optimize the use of the existing facilities and to explore localized technical solutions and standardization of a concept for the ICT center and/or library is recommended.

The revised curriculum for HEST will incorporate climate change aspects like energy conservation, the design of buildings that are energy efficient, use of building materials that has less impact on climate change, water conservation and renewable energy education for all TEVET trades.

**Monitoring program and complementary initiatives**

**During the implementation period, monthly site meetings will be held.** These meetings will monitor the implementation of the environmental mitigation plans. The management of the institutions will lead the environmental monitoring activities and will provide regular reporting to project management and the EIMU. In addition, Bank supervision missions will follow up on the implementation of the ESMP. The Civil Society Education Coalition was consulted during the mission and committed to assisting in the monitoring of the project's activities including environmental mitigation issues from their angle.

**Institutional arrangements and capacity building requirements**

**The MoEST will supervise the implementation of the ESMP.** As the executing agency, the overall responsibility for the implementation of the project ESMP will rest with the MoEST. In addition, environmental education will be provided by the institutions as part of the regular curriculum.

**Public consultations and disclosure requirements**

**The project is designed to operate in a participatory manner.** All activities will be implemented in close collaboration with the beneficiary institution and the decentralized local government structures to increase their sense of ownership of the improved facilities to be introduced under the project.

**Estimated costs: Project environmental components**

**The main environmental improvement falls under (i) sensitization on environmental issues and capacity building and (ii) the improvement of access to HEST with a budget of UA 418.520 million that includes the following:**

MW HEST - Cost of Mitigating Measures in UA	
<b>A</b>	<b>Mitigating measures costed separately</b>
	Extra Cost for Sustainable Building Technology 418.520
	Capacity building in sustainable development (TA, including waste management, maintenance and sanitation) 44.096
	<b>SUBTOTAL A 418.520</b>
<b>B</b>	<b>Mitigating measures that are included in other activities</b>
	Sanitation works 144.091
	Site works (roads and car parks, landscaping, waste depots, ) 1.478.153
	Security in workshops and laboratories 106.030
	Safety of construction workers 5.301
	<b>SUBTOTAL B 1.733.576</b>
	<b>TOTAL 2.152.096</b>

### **Implementation schedule and reporting**

**The environmental management and monitoring will be implemented following the same project schedule, as all activities were mainstreamed in the project design.** In addition to the bi annual supervision missions, particular emphasis on environmental issues will be done at the Launching in April 2012 and Mid Term Review missions ; the Mid-year and annual reviews as well as at Project Completion in December 2017. Achievements and problems will be reported in the project quarterly progress reports and will be addressed timely by the project management and the Bank.

### **Gender Analysis**

**Enrolment at all levels of education has increased in Malawi in the last decade, but there is disparity, which increases with the level of education, between female and male students.** The project takes into account Government's gender policy and strategy that takes cognizance of the fact that sustainable development cannot be realized without the full and equal participation of girls and children particularly those from poor households at all levels of education. The main activities of the project in this regard include; i) raising gender awareness of the communities by undertaking training and mobilization campaigns for the community and increasing the number of female teachers in the institutions by ensuring that at least 40% trainee lectures and instructors are female. Other measures supported by the project are to improve access to education for girls through the provision of merit-based scholarships at the technical colleges and the university for trades and programmes where the participation of girls is low.

### **Social Analysis**

**The project will contribute to government's efforts to develop the country's human resource base.** The project, through its support for improvement in the capacity of the university and technical education institutions and especially in trade related skills such as engineering, construction, mining, electrical and motor mechanic as well as carpentry will facilitate the building of both high and middle level skills in the country. These skills are needed for promoting sustained economic growth and social development. The project will specifically open up opportunities for the poorer sections of the Malawian population by increasing the spaces available for transiting to TEVET and HE as well as to the productive sector through the establishment of incubators in selected areas of specialization per institutions. At the household level, the enhanced individual productivity, resulting from improved quality of education, through regular training, both at night and make-up courses in the technical schools could lead to increased earnings and improved quality of life.