Marathwada MedTech Lab

Netra Accelerator Foundation

Environmental and Health Risk Management Plan

1. **Institutional Arrangements** (Details of policies in place at the project implementation site)

Requirements	Current Status	Mitigation Steps
Institutional Bio-Safety Committee (IBSC)	**Facility will make use of non bio materials such as plastics and polymers, metals, electronics components Therefore, formation of IBSC is not envisaged**	**In the event of change in scope in future IBSC will be formed**
EHS Team	**Being formed by GSM for the proposal under execution.**	**EHS team and policy shall be implemented during execution of the project**
Documentation and Record Keeping in reference to the risks mentioned below and quantifiable records of generated waste and compliance measures.	**Quarterly audits will be done by EHS team**	**In the event of abnormality SOP shall be amended and compliance made**
SOPs related to Environment Compliance e.g Chemical spillage handling, waste segregation etc.	**SOP shall be created and adhered.**	**EHS team will conduct quarterly audit.**
General Safety and Storage	**GSM will create and implement general safety and storage guidelines specific to the project.**	**EHS team will conduct quarterly audit for adherence of policy**

2. **Environmental Impact and risk mitigation** (Impact on the environment as a result of the activities conducted at the project implementation site)

Risks	Project Specific Risk	Potential Impact	Mitigation Steps
Air Pollution	Minimal Risk. as part of GSM PRMP.	People operating in machining facility may be affected by prolonged exposure in	Supervise for Sufficient ventilation is provided to ensure

		the same enclosed ambience. Particulate matter may impact quality of air	prescribed number of air changes. Air cooling is provided where every necessary to increase efficiency.
Water Pollution and Waste water treatment	Minimal Risk. Monitor that water will be used for domestic purposes only.	The water used in toilets and other purposes may get polluted.	GSM is already working on recycling water. Some of the facilities use grey water for toilet flushing etc
Chemical waste	Machining facility. No chemicals used, therefore minimal risk	In the event of need for chemicals in any product development, if not treated and disposed safely can disturb eco system	In the event of use of chemicals in any product development, safe disposing, recycling methods will be adopted.
Biological Waste	Not applicable as biological material will not be used in the facility.	Not applicable as biological material will not be used in the facility.	Not applicable as biological material will not be used in the facility.
Heavy metals	Minimal Risk. There is least possibility of the risk of contamination of heavy metals in the environment near and inside the facility. Only possible sources include the metals and alloys used for fabrication of prototypes (such as Titanium for implants and lead for soldering). Other minimal risk material includes wires, metal shavings etc.	There can be an adverse effect on human health due to the presence of these heavy metal in the environment.	As the facility is primarily for development of medical devices, high-toxicity heavy metals and other non-biocompatible material will not be used. Lead-free solder will be used for electronic devices. Proper regulatory measures will be undertaken if at all there will be any incidence of heavy metal contamination, related to the handling and disposal.
Electronic Waste	Minimal Risk. Iterative designs of prototypes, PCBs, electronic chips, accessories, spares of equipment, metallic wires etc.	Project implementation will not create any adverse electronic waste.	Software-based designs will be undertaken to minimize financial losses. Electronic waste generated will be disposed according to existing laws

Radiation Waste	Not applicable as project implementation will not create any radiological waste.	Not applicable as project implementation will not create any radiological waste.	Not applicable as project implementation will not create any radiological waste.
Destruction/ alteration of surrounding ecosystem	Minimal Risk. We are using existing facility on the campus.	There is no alternation or destruction of surrounding ecosystem	In event of any future requirement for additional facility, due approvals for environmental clearance shall be taken.
Construction and Demolition waste	Minimal Risk. We are using existing facility on the campus.	There is no construction activity.	In event of any future requirement for additional facility, due approvals for environmental clearance shall be taken.

3. Occupational Health and Safety and risk mitigation (Impact on health of individuals as a result of the activities conducted at the project implementation site)

Risks	Project Specific Risk	Potential Impact	Mitigation Steps
Heat Hazards	Machining and other process will result is heating the material under process and handling may cause damage to human working on such process	Burns will be caused while handling if sufficient care and safety measures are not taken	We will monitor that Heat generating components such as motors, tooling of Machines proposed to for Rapid Prototyping facility are covered and marked Operators will use safety gloves, goggles and aprons while operating Appropriate training will be offered to people working on such facility.
Chemical hazards, including fire and explosions	Short circuit and overloads can result is fire	Fires and explosions can result in loss of human life and damage to property.	We will review for Appropriate protections for short circuit and overloads will be incorporated. Fire Extinguishers for the facility shall be suitably located.

			Safety alarms, safe passages shall be provided. Periodic audit and drills will be conducted.
Pathogenic and biological hazards	Not applicable as biological material will not be used in the facility.	Not applicable as biological material will not be used in the facility.	Not applicable as biological material will not be used in the facility.
Radiological hazards	Not applicable as radioactive material will not be used in the facility.	Not applicable as radioactive material will not be used in the facility.	Not applicable as radioactive material will not be used in the facility.
Noise	High Risk. Use of heavy machinery for metal prototyping, activities such as grinding, milling, polishing of metals and plastics.	Continuous high decibel noise can lead to hearing impairment and deterioration of health.	Provision for ear plugs and other protective gear to operators wherever necessary
Process safety	Material handling , cutting, punching , machining, welding, moulding operations needs to be made safe	Improper handling can cause damage to human working on such facility.	Advise and monitor GSM that Safety measures such as safety shoe, gloves, apron, ear plugs, safety googles shall be provided to operators. Appropriate material handling facility shall be planned. The layout will be planned to ensure safety of humans working on such process

4. Community Health and Safety and risk mitigation (Impact on the community/ society as a result of the activities conducted at the project implementation site)

Risks	Project Specific Risk	Potential Impact	Mitigation Steps
Safety Transportation Management System (for transport of	Rapid prototyping facility does not use hazardous materials	Rapid prototyping facility may not have any adverse impact.	Rapid prototyping facility does not use hazardous materials

hazardous material)			
Emergency preparedness and participation of local authorities and potentially affected communities	Rapid prototyping facility does not use hazardous materials.	Fire and explosions can result into damage to human life and property	Monitor for Safety measures against fire and explosion hazards will be incorporated. The local fire department and civic authorities are well informed and their numbers are appropriately displayed. Fire exits will be properly marked and fire extinguishers will be available.
In case your organization already has **EHS guideline**, please summarise the same. If not, please describe the impact because of hazardous material, release of chemicals, biologicals, management of catastrophic events like fire/explosion**.**			

Notwithstanding the above other risk (relevant to the project activities) that will be identified in the course shall be addressed as per standard mitigation monitoring parameters and manner of records keeping shall be in accordance to the recommendations of the project monitoring committee on subject experts engaged by BIRAC

Governance model

Areas	**Monitoring Parameters**
Procurement Policy	NETRA will work with GSM to ensure • Constitution of Technical Committee- 3 members - Preparing requirement specification - Submit requirement specifications - Call for request for quotation - Thorough technical evaluation and establish benchmarking of features and pricing. • Constitution of purchase committee- 3 members

	• Complete ethical standards are followed by maintaining transparent process. Conflicts of interests are to be announced, courtesy, gratuity or any kind of gifts cannot be accepted from suppliers. • Purchases are made from manufacturer or its authorized representative. Competitive pricing will be encouraged by inviting quotations from multiple parties for high-budget equipment. • Stores department based on approvals and complete procedure releases purchase order and arranges material.
Vendor Evaluation and Supply Chain Management	NETRA will monitor Vendor registration and evaluation process is in place Prescribing appropriate criteria for vendor selection like suitable product, technical support, financial standing, credit rating, pre- and post-sales support services.
Manpower Recruitment Policy	Approving authority Director General of GSM with Authorized representative of NETRA. It will be monitored that • Job Descriptions are prepared by user department and indents are raised with support of budget provision and submitted to HR department. • Principal/Director approves the release of advertisement. • Applications received are scrutinized by HR and only eligible candidates resume are forwarded to indenter. • Based on formal interview, selected candidates are considered for offer letter. On acceptance of offer appointment letters with complete and clear terms and conditions are handed over. • Local skill gaps shall be bridged by hiring resources from national talent pool. • Gender representation is ensured. Human Resource Development team of GSM is responsible for processing manpower requirement with appropriate approvals from authorities as per manual
Subcontract and Outsourcing model	Arrive at broader guidelines and understanding for execution and dispute management jointly with GSM
Internal Monitoring Mechanism	• Board of Management for strategizing, review and mentoring. A BIRAC/ NBM member will be nominated to the management board. • Advisory board of eminent national and international experts. • Scientific Advisory committee for technical reviews and mentoring.

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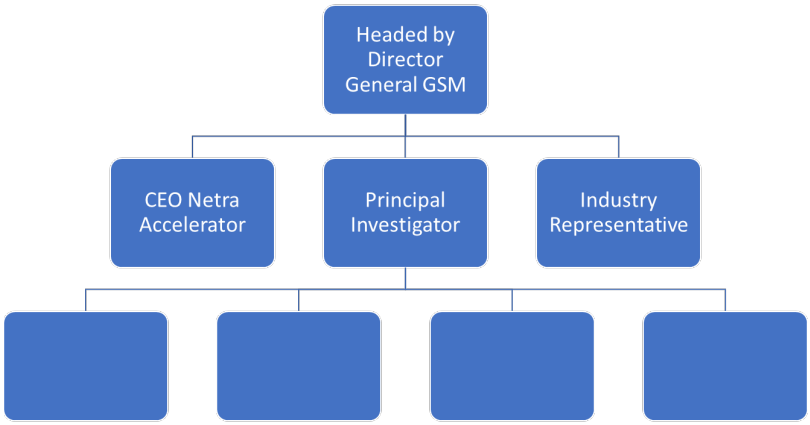
- Administrative team to implement management strategies.



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<tr><td rowspan="4">For Oversight by NBM-BIRAC
1. Implementation Governance model – Checks on fund utilization
- Checks on Technical side</td><td>Expenses Report will be maintained by GSM and NETRA monitors it. This report will be shared with BIRAC.</td></tr>
<tr><td>Milestone Achievement Report will be prepared jointly with GSM. This report will be shared with BIRAC.</td></tr>
<tr><td>Quarterly report on revenue will be prepared jointly with GSM. This report will be shared with BIRAC.</td></tr>
<tr><td>Quarterly progress report about facility development, products developed and technical difficulties will be shared with NBM/ BIRAC. Audited UC/ SoE shall be submitted to NBM/ BIRAC as on March 31st, Sept 30th and for every technical milestone.</td></tr>
<tr><td>2. Sustainability and Differential Costing Model
3. Trainings (to be provided to identified segment – Researchers, academia, start-ups, SMEs (National and Global)</td><td>To arrive at the differential pricing, a base price per hour usage of machine shall be worked out for each machine. It will have parameters such as electricity consumption, manpower involvement, tooling, and machine cost. Machine cost shall be suitably factored as it will be funded by BIRAC.
Proposals shall be worked out based on the factors such as requirement of machine, its usage per hour, material required, design support offered if any.
Standard rate cards for using facility by academic researchers, start-ups and industries.

• Base price + 10% more for students, Academic researchers
• Base price + 15% more for Startups, individual innovators,
• Base price + 50% more of Industries/Corporate usage</td></tr>
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	The list of available tests at the facility along with the prices will be advertised on the Netra Accelerator and GSM websites. An online system for submission of test requests will be developed. Data of facility usage will be shared with BIRAC on a quarterly basis.
	NETRA will support training in • Industrial Product Design • Rapid Prototyping • Designing for Additive Manufacturing • Ideation and solution development Will support programs be promoted at national level. Experts from industry and content developers shall be involved for the execution of training. Facilitate connect to researchers, SME's and Start-up. We will also encourage students to participate.