

**Center for BioPharma Analysis  
Entrepreneurship Development Center**

**Environmental and Health Risk Management Plan**

**1. Institutional Arrangements**

<b>Requirements</b>	<b>Current Status</b>	<b>Mitigation Steps</b>
Institutional Bio-Safety Committee (IBSC)	Bio-safety and Ethics Advisory Committee (BEAC) in place.	Regular meetings of BEAC. Further advancement to registered IBSC as required.
EHS Team	EHS team. policies, training mechanisms are in place and available on the intranet.	An additional training module will be prepared specific to the CBA.
Documentation and Record Keeping in reference to the risks mentioned below and quantifiable records of generated waste and compliance measures.	Internal documentation system exists	Documentation to be done as per GLP requirements
SOPs related to Environment Compliance e.g Chemical spillage handling, waste segregation etc.	SOPs for EHS practices exist	SOPs to be revised as per GLP requirements
General Safety and Storage	Included in the in-house EHS policy	In-house EHS policy is in place.

**2. Environmental Impact and risk mitigation**

<b>Risks</b>	<b>Project Specific Risk</b>	<b>Potential Impact</b>	<b>Mitigation Steps</b>
Air Pollution	<ul style="list-style-type: none"> <li>Emissions from air handling unit result in moderate risk</li> <li>Solvent vapours results in moderate risk</li> </ul>	<ul style="list-style-type: none"> <li>Exposure of AHU emissions to local environment</li> <li>Exposure of solvent vapours to workers</li> </ul>	<ul style="list-style-type: none"> <li>Anticipated emissions will be well below CPCB standards</li> <li>Use of appropriate personal protective equipment while handling solvent</li> </ul>
Water Pollution and Waste water treatment	<ul style="list-style-type: none"> <li>Risk of solvents/chemicals entering water streams</li> </ul>	<ul style="list-style-type: none"> <li>Contamination of water streams</li> </ul>	<ul style="list-style-type: none"> <li>Strict processes for use and disposal of solvents only in</li> </ul>

	<ul style="list-style-type: none"> <li>Contaminants entering sewers while washing of glassware</li> </ul>		<p>designated waste bottles.</p> <ul style="list-style-type: none"> <li>Strict guidelines for rinsing out of contaminants into designated storage and disposal bottles before washing.</li> <li>Anticipated effluents will be well below CPCB standards</li> </ul>
Chemical waste	<ul style="list-style-type: none"> <li>Halogenated waste and Non halogenated waste will pose moderate risk</li> </ul>	<ul style="list-style-type: none"> <li>Spillage leading to soil and water contamination</li> </ul>	<ul style="list-style-type: none"> <li>Storage in separate containers as per internal guidelines within well ventilated area</li> <li>Association with laboratory chemical waste management service providers for disposal of solvents</li> <li>Waste minimisation plan</li> </ul>
Biological Waste	<ul style="list-style-type: none"> <li>Cell culture waste will pose moderate risk</li> </ul>	<ul style="list-style-type: none"> <li>Spillage leading to soil and water contamination</li> </ul>	<ul style="list-style-type: none"> <li>Disposal as per internal guidelines</li> <li>Decontamination of all contaminated materials, specimens and cultures before disposal.</li> </ul>
Heavy metals	<ul style="list-style-type: none"> <li>Solvents, raw materials may be the source of heavy metals will create moderate risk</li> </ul>	<ul style="list-style-type: none"> <li>Mixing of samples containing heavy metal with soil and water</li> </ul>	<ul style="list-style-type: none"> <li>Solvents, raw materials contain negligible to none amount of heavy metals as compared with permissible standards</li> <li>Further mitigation plan will not be required</li> </ul>
Radiation Waste	<ul style="list-style-type: none"> <li>No radioactive waste will be generated during the project</li> </ul>	<ul style="list-style-type: none"> <li>No radioactive waste will be generated during the project</li> </ul>	<ul style="list-style-type: none"> <li>No radioactive waste will be generated during the project</li> </ul>
Electronic Waste	<ul style="list-style-type: none"> <li>There will be no Electronic waste generated</li> </ul>	<ul style="list-style-type: none"> <li>There will be no Electronic waste generated</li> </ul>	<ul style="list-style-type: none"> <li>There will be no Electronic waste generated</li> </ul>

Hazardous and C&D Waste	<ul style="list-style-type: none"> <li>• There will be no C&amp;D Waste generated</li> <li>• Solvent waste will create moderate risk</li> </ul>	<ul style="list-style-type: none"> <li>• Spillage leading to soil and water contamination</li> </ul>	<ul style="list-style-type: none"> <li>• Storage in separate containers as per internal guidelines within well ventilated area</li> <li>• Association with laboratory chemical waste management service providers for disposal of solvents</li> <li>• Waste minimisation plan</li> </ul>
Destruction/alteration of surrounding ecosystem	<ul style="list-style-type: none"> <li>• Project implementation will not create any destruction/alteration of surrounding ecosystem</li> </ul>	<ul style="list-style-type: none"> <li>• Project implementation will not create any destruction/alteration of surrounding ecosystem</li> </ul>	<ul style="list-style-type: none"> <li>• Project implementation will not create any destruction/alteration of surrounding ecosystem</li> </ul>

### 3. Occupational Health and Safety and risk mitigation

Risks	Project Specific Risk	Potential Impact	Mitigation Steps
Heat Hazards	<ul style="list-style-type: none"> <li>• No high temperature procedures are involved in the project</li> </ul>	<ul style="list-style-type: none"> <li>• No high temperature procedures are involved in the project</li> </ul>	<ul style="list-style-type: none"> <li>• No high temperature procedures are involved in the project</li> </ul>
Chemical hazards, including fire and explosions	<ul style="list-style-type: none"> <li>• Solvents will create moderate risk</li> </ul>	<ul style="list-style-type: none"> <li>• Exposure to chemicals</li> <li>• Accidental spills of chemicals</li> </ul>	<ul style="list-style-type: none"> <li>• Prevention <i>via</i> in-built safety measures, operational safety measures, standard operating procedures</li> <li>• Fire safety protection to handle chemical hazards</li> <li>• Training to employees</li> <li>• Emergency response plan</li> <li>• Minimal inventory plan</li> </ul>
Pathogenic and biological hazards	<ul style="list-style-type: none"> <li>• Biological material, Cell culture waste will create moderate risk</li> </ul>	<ul style="list-style-type: none"> <li>• Exposure due to accidental spills</li> </ul>	<ul style="list-style-type: none"> <li>• Prevention <i>via</i> in-built safety measures, operational safety measures, standard operating procedures</li> <li>• Training to employees</li> <li>• Emergency response plan</li> </ul>
Radiological hazards	<ul style="list-style-type: none"> <li>• No radiological substances are involved in the project</li> </ul>	<ul style="list-style-type: none"> <li>• No radiological substances are</li> </ul>	<ul style="list-style-type: none"> <li>• No radiological substances are involved in the project</li> </ul>

		involved in the project	
Electronic Waste	<ul style="list-style-type: none"> <li>No Electronic waste will be generated</li> </ul>	<ul style="list-style-type: none"> <li>No Electronic waste will be generated</li> </ul>	<ul style="list-style-type: none"> <li>No Electronic waste will be generated</li> </ul>
Hazardous and C&D Waste	<ul style="list-style-type: none"> <li>No C&amp; D waste will be generated</li> <li>Solvent waste will create moderate risk.</li> </ul>	<ul style="list-style-type: none"> <li>Exposure due to accidental spills</li> </ul>	<ul style="list-style-type: none"> <li>Storage in separate containers as per internal guidelines within well ventilated area</li> <li>Association with laboratory chemical waste management service providers for disposal of solvents</li> <li>Waste minimisation plan</li> </ul>
Noise	<ul style="list-style-type: none"> <li>No high noise generating procedures are involved in project</li> </ul>	<ul style="list-style-type: none"> <li>No high noise generating procedures are involved in project</li> </ul>	<ul style="list-style-type: none"> <li>No high noise generating procedures are involved in project</li> </ul>
Process safety	<ul style="list-style-type: none"> <li>Equipment malfunction</li> <li>Solvent spillage</li> <li>Glassware breakage</li> </ul> <p>All will create moderate risk</p>	<ul style="list-style-type: none"> <li>Prolonged downtime</li> <li>Human injury, Damage to the facility</li> </ul>	<ul style="list-style-type: none"> <li>Regular maintenance and inspection of equipment</li> <li>Standard operating procedures for each process step</li> <li>Solvent spill control mechanisms</li> <li>Glassware waste collection procedure is in place</li> </ul>

#### 4. Community Health and Safety and risk mitigation

Risks	Project Specific Risk	Potential Impact	Mitigation Steps
Safety Transportation Management System (for transport of hazardous material)	<ul style="list-style-type: none"> <li>Transport of solvents will pose moderate risk</li> </ul>	<ul style="list-style-type: none"> <li>Solvent spillage on road</li> <li>Solvent vapour exposure to transportation agents</li> </ul>	<ul style="list-style-type: none"> <li>Local procurement of materials to minimise transport distance</li> <li>Appropriate labelling of containers</li> <li>Ensuring that the volume, nature, integrity and protection of packaging and containers used for transport are appropriate</li> </ul>

			<ul style="list-style-type: none"> <li>• Providing the necessary means for emergency response</li> </ul>
Emergency preparedness and participation of local authorities and potentially affected communities	<ul style="list-style-type: none"> <li>• Electrical, chemical fire</li> <li>• Chemical, Biological spills</li> </ul>	<ul style="list-style-type: none"> <li>• Human health, property and environment</li> </ul>	<ul style="list-style-type: none"> <li>• Guidance document for emergency preparedness and response plan</li> <li>• Distinctive and recognisable alarm systems to indicate emergency</li> <li>• List of contacts in case of emergency</li> </ul>

In case your organization already has **EHS guideline**, please summarise the same. Also, share details of the **EHS Officer/ Contact Person** of the organization.

Details of EHS Officer at EDC:

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**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 or subject experts engaged by BIRAC.**