

Materiality Analysis at NHPC

1.0 Purpose:

Materiality is the principle of defining the ESG (Environmental, Social and Governance) topics that matter the most to a business and its stakeholders. It is a foundational and integral aspect of Sustainability Disclosures and Strategy Formulation.

NHPC business activities and operations are susceptible to both internal and external risks, which can substantially impact our ability to create value for the short, medium and long term. Recognizing this aspect, NHPC Enterprise Risk Management (ERM) policy ensures a sustainable business growth with stability and promotes pro-active approach in reporting, evaluating and resolving enterprise risks.

NHPC strives to derive exceptional value for stakeholders in the long run. To fulfil this endeavour, it is important to identify and assess stakeholder expectations and prioritise material topics to gather insights on the relative importance of specific Environmental, Social, Governance and Economic issues and their impact on our business. This enables the Company to create a systematic roadmap for sustainable value creation towards enhancing the trust factor by way of open and transparent interactions with stakeholders. It helps the Company to plan strategies for managing the risks and harnessing the opportunities, leading to overall growth.

With this aim, this position statement sets out NHPC's materiality assessment for the current financial year 2022-23.

2.0 NHPC's Materiality Assessment for FY 2022-23 –

2.1 The methodology

The rigorous and formal Materiality Assessment process involves internal and external stakeholder dialogue. Typical four-step process for Materiality Assessment is as below:



As a responsible enterprise of Govt. of India, with a diverse business portfolio and units spread across India, NHPC's stakeholders' bouquet is quite large and includes the Government and its statutory bodies, security holders, customers, employees, suppliers, contractors, local communities, and the society at large - who are directly or indirectly affected by the Company's operations.

For the current FY 2022-23, NHPC conducted a desk-based **Materiality Assessment** to understand the impacts of changing market dynamics and broad stakeholders' expectations.

2.2 Identification of material topics for FY 2022-23:

2.2.1 **NHPC Enterprise Risk Management (ERM):** Major topics have been captured from Enterprise Risk Management (ERM) policy of NHPC, whose broad policy framework is given below.

Broad policy framework:

- NHPC existing Enterprise Risk Management (ERM) policy ensures a sustainable business growth with stability and to promote a pro-active approach in reporting, evaluating and resolving enterprise risks through establishing a structured and disciplined approach to risk management.
- NHPC Enterprise Risk Management (ERM) framework helps in identification of the strategic, financial, operational and compliance risks. These risks play a huge role in our assessment process because of their significant impact on our business model and other value drivers, such as revenue growth, margins and required capital.
- A well-defined risk governance mechanism comprising of Risk Management Committee, Risk Assessment Committee and a Risk Cell besides Risk

Coordinators serves to communicate the approach of risk management throughout the organization.

- ERM framework is regularly reviewed in line with the changing risk landscape relevant to our business. Data on risk management is submitted by respective risk owners through internally designed ERM portal in order to enable all users to have access to data on real time basis.

2.2.2 Besides above, broad topics of relevance to NHPC's stakeholders, peers benchmarking, sectoral megatrends, risk perspectives with relevant mitigation strategies etc. have also been kept in consideration in the assessment.

2.3 Prioritization, Review and Categorization of Material topics

The key material topics identified in the ESG sphere as above have been prioritised to establish business strategies for better management and execution of business goals. Further, relevant material topics were reviewed in consultation with the concerned divisions / regional offices / power stations / projects etc. and M/s KPMG - the consultant engaged for formulation and related works of NHPC Business Responsibility and Sustainability Report (BRSR). The whole exercise led to categorization of **key material topics of high significance across NHPC locations, and is placed at Annexure.**

Materiality Assessment is a continuous process that needs review / assessment at regular intervals in line with the changing risk landscape relevant to business portfolio. Accordingly, NHPC will be undertaking a formal Materiality assessment for FY 2023-24 in alignment with the laid down Standards / Guidelines through external consultants / specialized agencies.

Key Material topics for the FY 2022-23

Key Material topics, its significance on our business and possible impacts of each issue along with action plan to minimize / maximize its impact (risk / opportunity) are tabulated as below:

S. No.	Material issue identified	Significance to Business (R/O)	Rationale for identifying the risk/ opportunity	In case of risk, approach to adapt or mitigate	In case of opportunity approach to maximize its impact
Environment					
1	Climate Change impacts	<p>Risks (Cost, Revenue, Productivity)</p> <p>Opportunity (New Business, Business continuity)</p>	<p>NHPC recognizes that the risk of long term effect of climate change requires suitable interventions to reduce global greenhouse gas emissions.</p> <p>Water forms an indispensable part of our operations as hydro projects utilizes potential energy of water stored in reservoir / pond to generate electric power, without its consumption. While excessive water in form of flood or cloud burst has the potential to hinder project construction activities and thus, may lead to time overrun and less rainfall may cause lesser generation than the designed capacity at our Power Stations, causing revenue loss.</p> <p>However, NHPC views it as an opportunity to our future business prospects, as our core business activities rely on energy generation through renewable energy sources like Hydro, Solar & Wind etc. Focus of policy makers towards minimizing the climate change impacts due to business activities has been increasing day by day. Therefore, NHPC being a leading player in hydro power development in India, can play a big role to not only reduce carbon emission by generating more renewable energy, but also will be a crucial player in achieving ambitious Net Zero target by 2070.</p>	<p>NHPC continues to make big strides towards reducing carbon footprints. Approach of the company towards environmental stewardship encompasses measures and initiatives around emission reduction, efficient water and energy conservation and waste reduction measures and increased usage of renewable energy by implementation of defined environmental safeguard measures.</p> <p>We are continuing with investing in green energy segment that empowers our customers to reduce their environmental footprint.</p>	<p>With the increased focus of policy makers towards minimizing the climate change impacts due to business activities; NHPC is making all out efforts to explore new businesses and investments in hydro, pump storage and other renewable project development.</p>

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2	Biodiversity	<p>Risks (Cost, Revenue, Productivity)</p> <p>Opportunity (New Business, Business continuity)</p>	<p>Protection of Biodiversity is of utmost importance in our business as it provides us the basis of our existence. Various project construction activities can impact the ecosystem if conscious efforts are not made to conserve the biodiversity. Regulatory frameworks of the country also require efforts to conserve and protect environment.</p> <p>Commitment to do businesses with due consideration for conservation of biodiversity vis-a-vis environmental awareness and related measures creates avenues for easy - connect with local values and sentiments thus facilitating conducive environment to work in any area. Thus, biodiversity consciousness is seen as opportunity to do businesses in remote / far flung areas.</p>	<p>Besides Corporate Environment Policy of NHPC, we are in process of implementing Policy on Biodiversity Management with inclusion of some provisions over & above the legal / statutory compliances w.r.t environment protection, conservation and management.</p>	<p>NHPC will showcase its efforts made in the areas of conservation of biodiversity, environmental safeguards / consciousness etc. beyond compliances of statutory requirements that will ultimately lead to connect with locals and to make conducive environment in and around project area for project development at faster pace.</p>
3	Natural Calamity	Risk	<p>Hydro projects are prone to the risks of flooding of construction area, power house, dam break due to excessive flood over designed capacity, high magnitude earthquake, damage to HM equipment, slope instability and other geological issues like rock fall / landslide / cloud burst / tunnel collapse etc. during construction as well as operation stage.</p>	<ul style="list-style-type: none"> • Emergency action plan reservoir operational guidelines as well as other SOP (Standard Operating Procedures), manuals are available at dam control room /powerhouse • Establishment of Gauge and Discharge sites at upstream of the barrage/dam and coordination with upstream projects/power stations in cascade system to have prior information of flow sufficiently before flood reaches the 	

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				<p>barrage/ dam/ reservoir sites.</p> <ul style="list-style-type: none"> • Closure of Intake gates of HRT and TRT gates/Draft tube gates during planned / unplanned reservoir flushing operation and whenever complete shutdown of powerhouse is required. • Advance flood warning system are installed wherever necessary/required • Pre and post monsoon inspection by Dam Safety Team are carried out regarding the health status of dam and their remedial measures are implemented. • Necessary design measures are taken to mitigate the risk of all natural disasters by assessing their impact on the project. • Periodic emergency response drills are conducted to train the personnel on their responsibilities at the time of disaster. • Emergency response measures 	

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				<p>such as immediate medical aid and ambulance facilities are available at projects/power stations.</p> <ul style="list-style-type: none"> Establish seismic monitoring facilities at dam site or any other suitable nearby places 	
4	Disaster Management	Risk	<ul style="list-style-type: none"> Although through detailed field investigations it is ensured that the dam is founded on firm foundation, designed for suitable seismic design parameters and are got duly examined / concurred by various Technical Agencies like CEA/CWC/GSI/CSMRS etc., yet in view of certain element of Force Majeure, the eventuality of a disaster cannot be ruled out in case of hydro projects during construction as well as operation stage. Besides this, the risk of damage to the structures and vital installations due to fire, loss of human and animal life, material, machinery etc. due to sudden release of water in downstream areas are also associated with hydro projects / stations. 	<ul style="list-style-type: none"> Disaster management/ emergency action plan for each location with delegation of responsibility are in place and nodal disaster management committee has been set up to provide guidance at the corporate office. Every Project is designed specifically with latest available site data and investigation carried out with state of the art technologies. All codal requirements are fulfilled and best practices around the globe are adopted in project design. The project parameters are examined and vetted by specialized agencies viz. CEA, CWC, GSI, CSMRS 	--

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				<p>etc.</p> <ul style="list-style-type: none"> • Disaster Management Plan along with dam break analysis and simulation based Inundation plan are formulated for each project explicitly and are regularly updated. • At all power stations, mock drills and awareness programme are conducted in downstream areas of dam towards preparedness in case of any eventuality. • For safety against fire, a Fire Protection Program (FPP) is in place encapsulating various remedial measures and post-incident mitigation measures besides SOPs for training / awareness / mock drill programmes, emergency response measures etc. • Towards safety during sudden release of water in downstream from dam during floods and Power House, NHPC takes various measures in accordance with the laid down SOPs covering establishing 	

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				sirens & permanent Notice boards at vital locations in the downstream area, vast communication systems with local authorities, pre-announcements on speakers etc. during monsoon period and reservoir flushing etc.	
5	Waste Management	Risk	Waste (Hazardous & Non-hazardous) generated at various locations, if handled / disposed off improperly, attracts □Regulatory implications for the Company.	<ul style="list-style-type: none"> •Waste (Hazardous & Non-hazardous) generated are properly handled and disposed with approved agencies/ following standard practice as per stipulated guidelines by regulatory authorities. • Specific guidelines and systems instituted for handling of domestic, bio-medical and Electronic wastes. • The scrap and recyclable waste is managed through auction on e-platform. 	--
Social					
1	Community Relations & Engagement	Risk	NHPC concur with the fact that some communities i.e. Project Affected Families, landowners etc. get negatively impacted throughout the life of our operations across economic and	We have adopted a more proactive approach of consulting with landowners, focusing on	--

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			<p>social aspects.</p> <p>This is linked to our ability of get hold not only of the resources required for our operations but also the necessary capital. At Hydro projects, every location has a different set of cultural and economic values, which influence the expectations, set on us by the local communities.</p> <p>For a conducive and hindrance free environment in project area for hydro project development, it is utmost required to fulfil all such expectations of these communities and to bridge the trust levels employing high standards of community engagement practices across all our sites.</p>	<p>enhancing our efforts and making a commitment to generate continuous value for both i.e. the business and community.</p> <p>These practices include integrated land use planning; training and upskilling of the community; placing utmost importance on cultural values and their integration into our relationship with the community; encouraging local employment and sourcing, thereby improving their livelihood, besides R&R and other statutory compliances.</p> <p>Besides this, our approach towards mitigation of this risk is:</p> <ul style="list-style-type: none"> • Dedicated CSR policy in line with Companies Act, 2013 and Department of Public Enterprises (DPE) Guidelines for CSR Key community based programme at each Power Station / Project level • Our focus areas include Health, Sports, Sanitation, Water, Skill Development and Education. 	

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				<ul style="list-style-type: none"> • CSR works are undertaken in association with locals. • NHPC is continuously spending on CSR over & above the prescribed limit i.e. 2% of average of last 3 years PAT. 	
2	Employee health, safety, and well being	Risk	Our activities / operations involves hazardous/ accident prone procedures at times, which may negatively impact our workforce and the surrounding Environment.	<ul style="list-style-type: none"> • Safety is inculcated in the core values of NHPC. • Target of zero incidents by establishing robust safety culture and policy • Upgradation of operating procedures and conducting regular awareness programmes / trainings to make the work environment safe & healthy • Addressal of potential safety hazards owing to diversification into new technologies and business areas • Mandatory Periodic Occupational health check-ups for all employees and contract labourers 	--

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				<ul style="list-style-type: none"> Record Keeping of medical history of employees and their family through online centralized portal 	
3	Human Resource Management including Development	Risk and Opportunity	<p>Employees are the backbone in the business system. Any lapse in Human resource management can lead to loss of productivity, thus impacting business operations and profitability. Similarly, lack of succession planning, manpower attrition and non-development of core competency can erupt that can adversely impact our business growth.</p> <p>In parallel, maintaining a culture that is safe, diverse, and high on employee engagement, can make us the employer of choice. We also understand that an open and trusting environment can bring out the best in our employees.</p> <p>With the ever changing scenario of policy environment, competition, best practices, technology upgradation etc., it is essential to keep our Human Resource updated with the changing landscapes, so as to enable them to grow themselves & perform well in vertical elevations, to be future ready, and to discharge their duties effectively & timely manner. Lack of training to keep employees abreast with the industry's latest technologies or with evolving industry demands/international standards can also lead to tardy pace of business growth. On the other hand, well designed / planned trainings with employee and task specific requirements will be an opportunity to give pace to achieve business goals effectively and even faster.</p>	<ul style="list-style-type: none"> Company has proper recruitment policy for recruitment of personnel at various levels Proper appraisal system for revision of compensation on a periodical basis has been evolved and is followed. Employees are trained at regular intervals to provide opportunity to upgrade their skills in various fields. Labour problems are obviated by negotiations and conciliation. Activities relating to the Welfare of employees are undertaken. Employees are encouraged to make suggestions and discuss problems with their Superiors. Manpower planning/ assessment and Succession Planning are performed to 	<ul style="list-style-type: none"> Continuously reengineering HR systems to strengthen the relationship between business growth and systematic employee development Continuous engagement activities and training programmes Systematic job rotation and career development scheme to aid Employees in their horizontal and vertical growth Mandatory training hours per employee are defined and the training curriculum is reviewed and revised periodically to develop employees' core competencies. Training Need Analysis is carried out to design the training curriculum for all the organizational roles.

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				<p>establish staffing levels and a systematic process is followed for identification of required human capital resources, adequate competencies and the development of strategies necessary to meet these requirements.</p> <ul style="list-style-type: none"> • Various mechanisms adopted via financial/non- financial reward & recognition systems including performance related incentive based on individual/ group performance which lead to increased organizational productivity, systems for unlocking creativity/ potential of employees, competence building aiming to have higher satisfaction of employees and also arrest employee attrition. • HR tools like employee satisfaction survey, exit interviews and external benchmark study to frame and implement a companywide retention policy is adopted to prevent loss of business skills and check attrition. 	

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4	Labour Management	Risk	<p>The risks associated with the Labour Management are:</p> <ul style="list-style-type: none"> • Labour Turnover risks involving Replacement risks, Training risks, Skill Development etc. • Unrest Risks due to Strikes and Lockouts. • Stoppage of work due to labour problems of Contractor. <p>These may impact our business activities negatively and may cause time & cost overruns due to hindrances in construction activities.</p>	<ul style="list-style-type: none"> • Uphold the best standards pertaining to wage determination, allocation of tasks, shifts & working hours, provision of training, incentive & reward schemes and occupational health & safety standards • Dedicated Human Rights Policy, Equal Opportunity Policy are being evolved to promote and safeguard of all kind of organizational rights and equal opportunities to all without any discrimination • Implemented online portal namely “Contract Labour Payment Management (CLPM)” for ensuring timely labour payments and monitoring. 	--
5	Socio Political matters	Risk	<p>Land acquisition and R&R issues are important in Hydro power development. At times, it becomes major issue to such an extent that project development gets delayed causing time and cost overruns or even stuck down to finally abandon the project development.</p>	<ul style="list-style-type: none"> • Consultative and community-centric approach honoring the claims of local population, and recognizing their traditional rights over the land. • Rehabilitation & Resettlement 	--

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				<p>(R&R) benefits to the Project Affected Families (PAFs) as per the R&R Plan approved by respective State Government with stakeholder consultations in line with extant Policies / Acts / Guidelines.</p> <ul style="list-style-type: none"> • Community relationship cell at project level are constituted for actively engagement with State government and local administration for the effective implementation and monitoring RR scheme in accordance with extant laws/policies. • Social and community development in and around project areas including approach roads, community buildings, health and hygiene facilities, water supply, programmes to encourage students/entrepreneurship/ skill development etc. through a need-based Community and Social Development Plan. • By creating large pool of locally available skilled and 	

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				<p>employable people to ascertain less resistance from local people for land acquisition, as they will get employment from the project</p> <ul style="list-style-type: none"> Measures to improve the Socio-economic status of the Project Affected Families (PAFs) 	
6	Human Rights	Opportunity	<p>We consider Human Rights as an important material topic, given its significance for our internal and external stakeholders.</p> <p>The inclusion of diversity (gender, special ability) in the workforce leads to better decision-making and higher productivity. We believe that workforce diversity is a business imperative and strive to ensure that our workforce represents all sections of society.</p>	<ul style="list-style-type: none"> Respect the rights by not indulging in child or forced labour, avoiding human trafficking, and eliminating harassment and discrimination in business activities directly or indirectly. Ensure that employees are given wages that equal or exceed legal requirements Implementing policies and procedures to prohibit child labour, forced labour etc. Robust system for employee grievance redressal mechanisms, collective bargaining and contract labour management cells are in 	

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Governance					
1	Business Ethics and integrity	Commitment	Accountability and transparency is held in the highest regard at NHPC. Our top leadership is committed to promoting and ensuring compliance with the Code of Conduct for ethical and transparent behavior, as also its Integration into our Vision.	<p>In NHPC, Policies of code of conduct, Whistle Blower, Grievance redressal mechanism and Banning of business dealings etc. are in place.</p> <p>We are also strived towards 100% compliance with laws and regulations ensuring a transparent and corruption free work environment.</p>	--
2	Regulatory Compliances	Risk	<p>Regulatory compliances are highly essential to our operations and thus be able to hold on to the social licence to operate.</p> <p>Being an enterprise of Government we are highly responsible for keeping compliances with the regulatory norms across our sites, as non-compliance with the same will tarnish the image, leading to loss of business and revenue. Hydro projects are also prone to unanticipated regulatory changes by State / Central government as they can result in time & cost overrun of the project and / or financial loss.</p>	<ul style="list-style-type: none"> • Robust internal systems and processes in place for smooth and efficient conduct of business • Our systems are designed to ensure regulatory compliances and maintain highest level of Corporate Governance • Internal environmental audits of the stations are conducted by expert teams comprising internal and external members • All NHPC stations are 	--

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				<p>ISO14001:2015 certified and therefore periodical external audit of the environmental systems are done by the certification agencies</p> <ul style="list-style-type: none"> • Regular updation of internal procedures as per revision in regulations • By proactively liasioning with Central/ State Government to maintain healthy relations and to ensure that discussions take place prior to such regulatory changes and our concerns / reservations are well taken prior to final notification / issuance of such changes. 	
3	Legal risks and Contractual Disputes	Risk	<p>Hydro projects are site specific and capital intensive. Also, they encapsulate vast scope of work and long gestation period. Any Contractual disputes at any intermediate stage of construction of project, if not settled in time, may cause extraordinary delays causing time and cost overruns of the project. There can also be financial losses due to claims, initiated by contractors.</p> <p>The legal risks relate to the following :</p> <ul style="list-style-type: none"> • Contract Risks 	<ul style="list-style-type: none"> • A study of contracts with focus on contractual liabilities, deductions, penalties and interest conditions is undertaken on regular basis. • Contracts are finalized as per the advice from legal professionals and Advocates. • Timely payment of insurance and full coverage of properties 	--

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			<ul style="list-style-type: none"> • Contractual Liability • Frauds • Judicial Risks • Insurance Risks 	<p>of the Company under insurance.</p> <ul style="list-style-type: none"> • Internal control systems for proper control on the operations of the Company and to detect any frauds • Robust internal systems and processes in place for smooth & efficient business activities • Dispute avoidance mechanism through independent Engineers (I.Es) in order to minimize / resolve contractual disputes at the inception stage itself. • Improved Dispute Resolution Mechanism for faster & effective resolution of disputes • Laid down Internal guidelines and procedures for effective & timely disposal of contractual claims etc. • Compliance of Government / CVC guidelines in true spirit 	
4	Liquidity	Risk	Hydro projects are capital intensive and have high initial investment costs and long gestation & payback periods. Any delay and consequently long halt in project development	<ul style="list-style-type: none"> • Proper financial planning is put in place with detailed Annual Business Plans 	

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			<p>activities due to some uncontrollable issues can cause time & cost overruns, that leads to escalation of project cost further and thus loan portion also accumulates without any intended returns from the project.</p> <p>Risks involved are:</p> <ul style="list-style-type: none"> • Financial solvency and liquidity risks • Borrowing limits • Cash management risks 	<p>discussed at appropriate levels within NHPC</p> <ul style="list-style-type: none"> • Annual and Quarterly budgets are prepared and put up to management for detailed discussion and an analysis of the nature and quality of the assumptions, parameters • Daily and Monthly cash flows are prepared, followed and monitored at senior levels to prevent undue loss of interest and utilize cash in an effective manner. • Exposures to Foreign Exchange transactions are supported by LCs and Bank Guarantees and steps to protect undue fluctuations in rates etc. 	
5	Operational Efficiency & Plant availability	Risk	<p>Hydro power plants are recognized for grid stability and ancillary support services due to its inherent capabilities. The operational reliability of the generating units of the hydro power stations is such that whenever the grid demands, it should be available for generation.</p> <p>Operation and Maintenance of hydro power stations aim at reducing failure rate by ensuring smooth operational levels of the power utility. Inadequate / lack of timely availability of</p>	<ul style="list-style-type: none"> • Improvement of operational efficiency through adoption of new technology. • Adopting best operation and maintenance (O&M) practices and conducting periodic review. • Increasing plant availability through improved maintenance 	--

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			<p>equipment and civil / HM Maintenance exercise results in loss of power generation due to frequent equipment breakdowns and may cause financial loss. Similarly, improper tracking of equipment maintenance, preventive maintenance schedules. risk of unplanned shutdowns erupts which also causes financial loss.</p>	<p>and Data Analytics Technique and proper inventory management.</p> <ul style="list-style-type: none"> • Improvement of current systems and providing job specific trainings to workforce • Collaborating with reputed academic / industrial institutions for Research & Innovation activities • By adhering to Annual preventive maintenance and minimum inventory plan for spares to minimize breakdown losses in power generation. • Suitable contractors and vendors are identified for various emergency works for immediate restoration/ remediation measures to minimize loss of generation. • Ensuring strict compliance as per OEM guideline for timely preventive maintenance of equipments across all plants. 	