TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES

FY2022 Report

Climate Risk Identification and Mitigation

WELSPUN CORP
Pipes & Steel

Contents

About This Report

This report intends to provide an overview of Welspun Corp's (WCL) climate change strategy, performance, and governance as well as risk and opportunity management in alignment with the recommendations of Task Force on Climate Change related Financial Disclosures (TCFD). It reflects WCL's strategic outlook to drive climate action towards decarbonization and resilience to the effects of the climate crisis.

Reporting Boundary

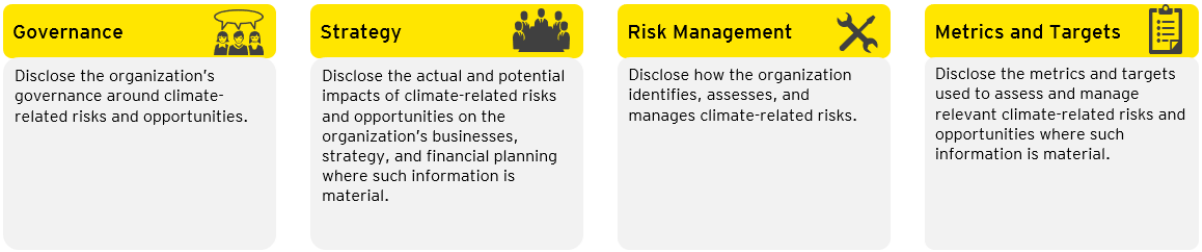
The reporting boundary includes the manufacturing facilities of WCL as shown in the table below:

Sl. No.	Manufacturing Site	Address
1	Welspun Corp Limited – Anjar	Village Versamedi, Taluka Anjar, Dist.Kutch, Gujarat - 370110 (Pipes)
2	Welspun Corp Limited – Dahej	Village Jolva & Vadadla, Near Dahej, Taluka Vagra, Dist. Bharuch, Gujarat - 392 130
3	Welspun Corp Limited – Mandya	KIADB Industrial Area, Gejjalagere, Taluka Maddur, Dist. Mandya, Karnataka - 571 428 (Pipes)
4	Welspun Corp Limited – Bhopal	Survey No. 228-229, Village Jamunia & Khejda, Dist. Raisen, Madhya Pradesh - 464 551 (Pipes & Coatings)

The report describes the use of scenario analysis to evaluate the resilience of WCL facilities to physical and transition risks. The focus of this report is on assessing the potential impact of climate related risks and opportunities linked to the transition to a low carbon future.

Executive Summary

WCL has adopted the Task Force on Climate-Related Financial Disclosures (TCFD) framework to identify and assess the potential risks linked to climate on its business operations. These climate risks typically refer to the physical impacts resulting due to extreme weather and climatic events and the impact associated with a shift to a low carbon economy. WCL has assessed the climate risks to the organisation based on 4 pillars as recommended by the TCFD. They are governance, strategy, risk management, and metrics and targets.



Climate Change Governance

WCL considers climate change as a material issue in the sustainable development of its business. The company has established an ESG & CSR Committee and a Risk Management Committee, which inform the Board of Directors about the various potential climate related issues that are relevant to the company. The ESG & CSR Committee is responsible for identifying, assessing, and managing climate related risks and opportunities. The Risk Management Committee is responsible for assessing and continuously reviewing the risk management framework as well as the assessment of risks, their management and mitigation procedures.

The Board conducts quarterly meetings and is responsible for the approval and implementation of climate related initiatives and policies as suggested by the Management. WCL ensures transparency of information to investors and stakeholders through public disclosures of ESG practices.

Strategy

WCL is in the phase of formulating an effective low carbon transition strategy to oversee the operations in a sustainable manner. The company has set a target to be carbon neutral by 2040. It has also placed in target to be water neutral by 2040.

It is currently formulating a strategy to shift towards 20% renewable energy by 2030. Energy saving strategies like installation of variable frequency drives, digital temperature controllers, retrofitting LED lights, replacing the use of furnace oil and LPG with natural gas, switching to efficient pumps, improvements in the HVAC has benefitted WCL financially. In addition, WCL is also automating and digitalising its production process.

Aligned with TCFD recommendations, WCL has formulated its climate risk mitigation strategies by analysing different climate scenarios for different timelines.

The climate related risks and opportunities were assessed for 3 different timelines: short-term (up to 2030), medium-term (up to 2040) and long-term (up to 2050) for 3 different climate scenarios. The scenarios are:

Optimistic Scenario: In this scenario, the world is moving towards sustainable development through increased focus on environment and social issues. There is a rise in adoption of low carbon technologies and increased focus on human capital development. It represents a realistic approach to limiting the global temperature rise well below 2 degrees.

Business as Usual: In this set-up, policies are being developed and initiatives are being taken to tackle climate change, but the environmental systems continue to experience degradation and societal and environmental challenges remain as in the present situation. This scenario represents a situation in which economies have developed moderately to limit global temperature rise between 2–3 degree above pre-industrial levels.

Pessimistic Scenario: Represents circumstances in which economies believe in development of human civilization without considering the environment. The local environmental problems are addressed with the help of technological solutions, but the potential global environmental impacts are neglected owing to a perceived trade-off with progress in economic development. This pessimistic approach results in potentially high challenges to climate mitigation.

WCL has set a target to become carbon neutral by 2040 and to use 10% renewable electricity (RE) by 2025 & 20% RE by 2030.

To mitigate the technological risks arising from increased demand for electric vehicles, and decrease in demand for crude oil, WCL has expanded its portfolio with the addition of Pig Iron, Ductile Iron Pipes BIS Certified Steel Billets, Direct Reduced Iron, TMT bars, Stainless & Alloy Steel and Stainless-Steel Tubes & Pipes. Transformative as well as operational innovations are regularly undertaken through R&D to keep up with emerging technologies and shift in customer preferences towards sustainable products.

WCL has a well-defined corporate communication and social media policy to manage communication with external stakeholders. WCL constantly heeds to social concerns with the help of a dedicated CSR team. The company has spent INR 37.8 million in FY21 through Welspun Foundation for Health and Knowledge (WFHK) to cater to the needs of communities.

In terms of physical risks, we identified 7 risks which were applicable to our operations sites. The site at Anjar and Dahej are prone to tropical cyclones due to its close proximity to the coast. This can cause infrastructure damage as well as supply chain disruption. Mandya and Dahej are prone to riverine flood risk with projected inundation depths of greater than 20 decimetres by 2050. As a first line of defence, we regularly monitor weather reports and events. WCL has also identified critical suppliers, alternate ports, and other shipment methods like railways to ensure supply chain resilience in the event of riverine floods, extreme rainfall, cyclone, or sea level rise.

Water stress is a key physical risk which is bound to increase in times to come. An analysis has projected doubling of water stress in the next 10 years in Anjar. The company has undertaken initiatives in partnership with the State Government like the *Sujalam Sufalam Abhiyan* to conserve water bodies. WCL has also developed utility digital dashboard for online monitoring of water consumption.

To mitigate the risks of increasing temperatures and heat, WCL has implemented measures like frequent breaks, and availability of potable water and rest rooms so that the workers do not face exhaustion and productivity is maintained. Efficient cooling solutions and renewable energy integration projects are also in the pipeline to reduce cooling costs.

Risk Management

WCL recognises the impact that the identified physical and transition risks can have on the business. Our strong governance architecture includes a well-structured Enterprise Risk Management (ERM) framework, risk management committee and ESG and CSR committee. The identified climate related risks by the committee are prioritized, and the mitigation measures suggested by the management is reviewed by the board periodically.

Metrics and Targets

WCL track and monitor several climate-related metrics to understand physical and transition risk impacts across the operations. Key performance indicators (KPI) are established for monitoring climate performance. The sustainability roadmap that articulates WCL's goals and targets till 2040 is outlined in the following table.

Sl. No.	KPI & Metric	Target
1	Total GHG Emissions (MT of CO2e)	WCL has set a target to become carbon neutral by 2040 and to use 10% RE by 2025 & 20% RE by 2030
	Scope 1 emissions (MT of CO2e)	3,365
	Scope 2 emissions (MT of CO2e)	92,435
2	Water intensity (KL/MT)	WCL has set a target of 0.55 KL/MT, 0.40 KL/MT for FY 2025 & 2030 respectively. It has also set an overarching target to become water neutral by 2040.
3	Waste to landfill (MT)	WCL has set a zero waste to landfill (ZWL) target by 2030 and to limit waste to landfill by 1 MT by 2025.
4	Sustainable Supply Chain (% suppliers assessed as per ESG compliant code of conduct)	100% of critical suppliers to be assessed on ESG parameters by 2025.

Climate Change Governance at WCL

Governance is one of the most vital components of WCL climate risk framework. This covers governance framework, the roles, responsibilities, and decision-making procedures by which a company adheres to its climate-related commitments.

The Company has established a ESG & CSR policy and risk management policy that defines the overall risk management framework.

To ensure accountability and monitoring, the Board has constituted various committees. The Board's various committees comprise of members of the Board of Directors and are responsible for carrying out specific functions assigned by the Board. The committees meet periodically during the year to supervise, review performance and advice on the necessary direction to be taken within the authority delegated. The Committees also make specific recommendations to the Board on various matters whenever required. The Board reviews its long-term strategic plan at least annually to assess the Company's approach for climate-related concerns.

With a view to further strengthen its commitment and enhance Board's oversight over ESG matters, the Board of Directors expanded the scope of the 'Corporate Social Responsibility ("CSR") Committee' to include Environmental, Social & Governance ("ESG") matters and renamed the CSR Committee as 'ESG & CSR Committee '.

The role of the ESG & CSR Committee is to assist the Board in fulfilling its oversight responsibilities on the matters relating to Environmental, Social & Governance factors (including matters related to CSR). The Board has approved the charter of ESG & CSR Committee to ensure full achievement of the purpose.

The risk management committee of the Board oversees and reviews the risk management framework as well as the assessment of risks, its management and mitigation procedures. The committee reports its findings and recommendations to the Board.

Figure: Sustainability governance at WCL

The composition of the ESG & CSR Committee consists of 2 independent directors and 2 non independent directors.

The risks for each business segment and location are identified along with the impact they may have on the business objectives. The risk management committee reviews these identified risks and develops mitigation plans on an ongoing basis which is important in strategic decision making of the company.

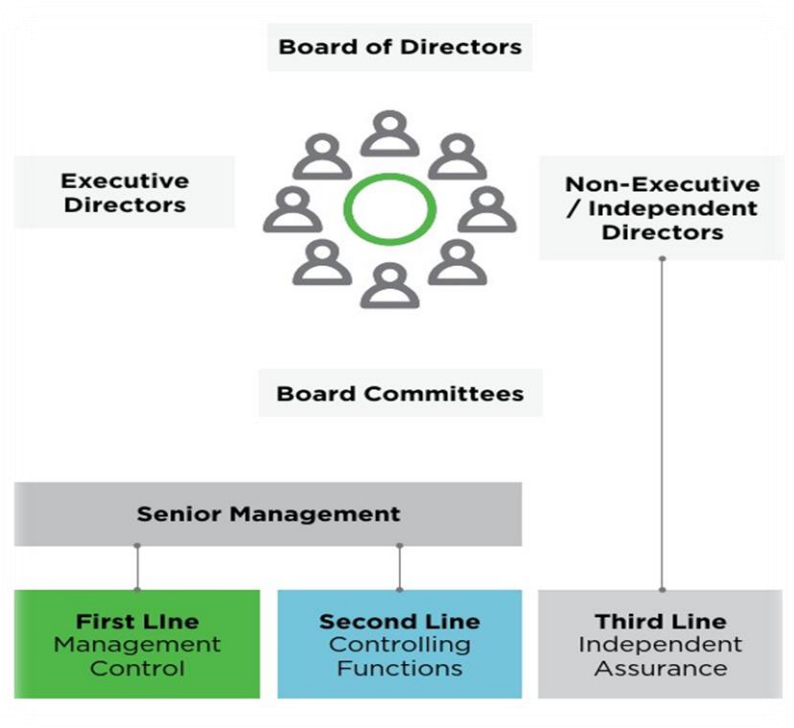


Fig: Governing Body Structure at WCL

WCL has well established governance structure with three lines of defence that governs the effective functioning of the organisation. Each of the three lines plays a distinct role within the organisation's wider governance framework. All three lines of defence operate in a coordinated manner with the common objective to support the organisation in achievement of its objectives and effective risk management.

First Line (prevent risk): The first line of defence has the primary ownership of risks and its main task is to prevent risk. It reports to senior management.

Second Line (prevent & detect risks): Second line of defence plays an important monitoring role and is responsible for prevention and detection of risks.

Third Line (detect risks): Independent assurance function serves as a third line of defence. The third line of defence helps accomplish objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, controls, and governance processes. It reports to the governing body.

WCL believes in a robust governance mechanism for the companies' persistent performance. Hence, it has redefined the governance of Environment & Social (E&S) aspects across organizational levels which ensured delegation of accountability and led to an effective monitoring of action and associated

outcomes. Incorporating a review mechanism of E&S KPIs at the board level acted as a control measure that will showcase transparent outcomes against targets and enable effective decision-making.

Strategy

The Strategy pillar of the TCFD disclosures provides information about a company's exposure to climate-related risks and opportunities. Also, under this pillar, a company covers its response to the risks and opportunities, and how are they integrated in the overall strategy.

Investors and other stakeholders need to understand how climate-related issues may affect an organization's businesses, strategy, and financial planning over the short, medium, and long term. Such information is used to inform expectations about the future performance of an organization.

Using the TCFD framework, climate-related risks, and opportunities across three timeframes were explored: short-term (up to 2030), medium-term (up to 2040) and long-term (up to 2050).

Climate-Related Risks

Climate related risks pose threats which have financial implications for organizations, such as direct damage to assets and indirect impacts to the supply chain.

TCFD classifies climate-related risks into two major categories:

- *Transition Risks*: Risks related to the transition to a lower-carbon economy
- *Physical Risks*: Risks related to the physical impacts of climate change

Transition risks scenario analysis was conducted in alignment with IEA World Energy Outlook 2021 (WEO-2021) and Net Zero Emissions (NZE) scenario. The NZE scenario was compared to the unmitigated pathway or business as usual (BAU) scenario. The BAU scenario for WCL till 2050 was assessed assuming that there would be an incremental increase in GHG emissions by 7% year on year. The GHG emissions for FY 2021-22 was considered as the baseline for projecting BAU future emissions. The scenario analysis was used to assess the potential impact of evolution of climate policies to test the resilience of the company, as well as to strategize the potential pathways for decarbonization for WCL to comply with expected policy mechanisms such as emission trading schemes.

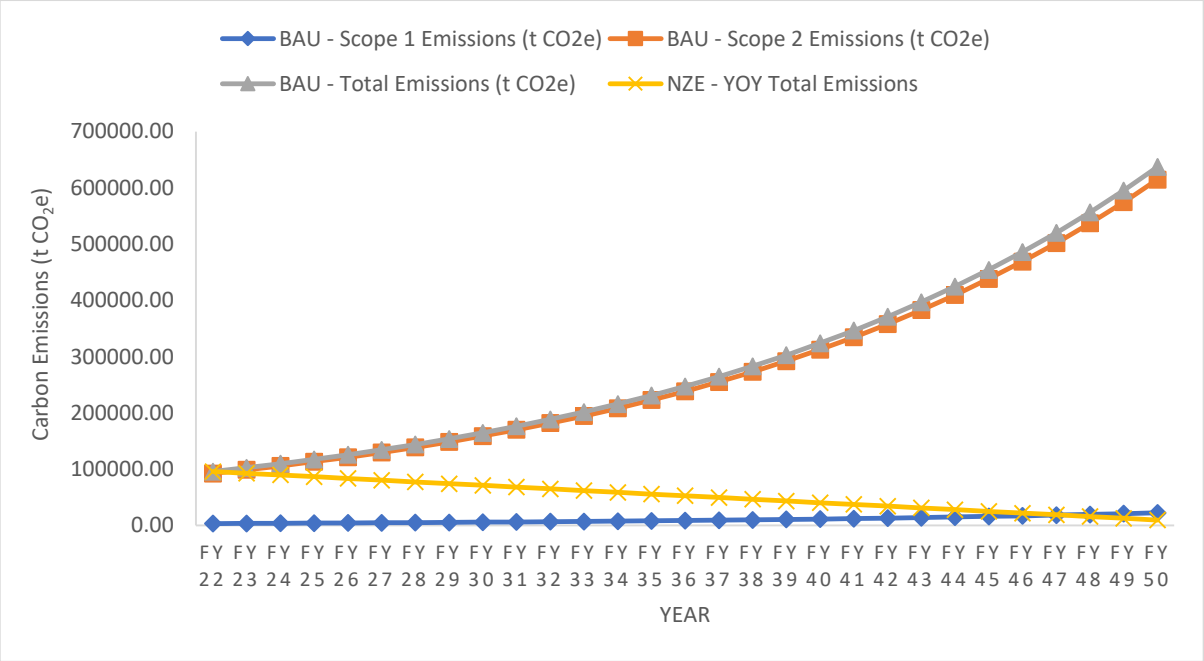


Figure: Scenario Analysis of GHG emissions with BAU & NZE scenarios

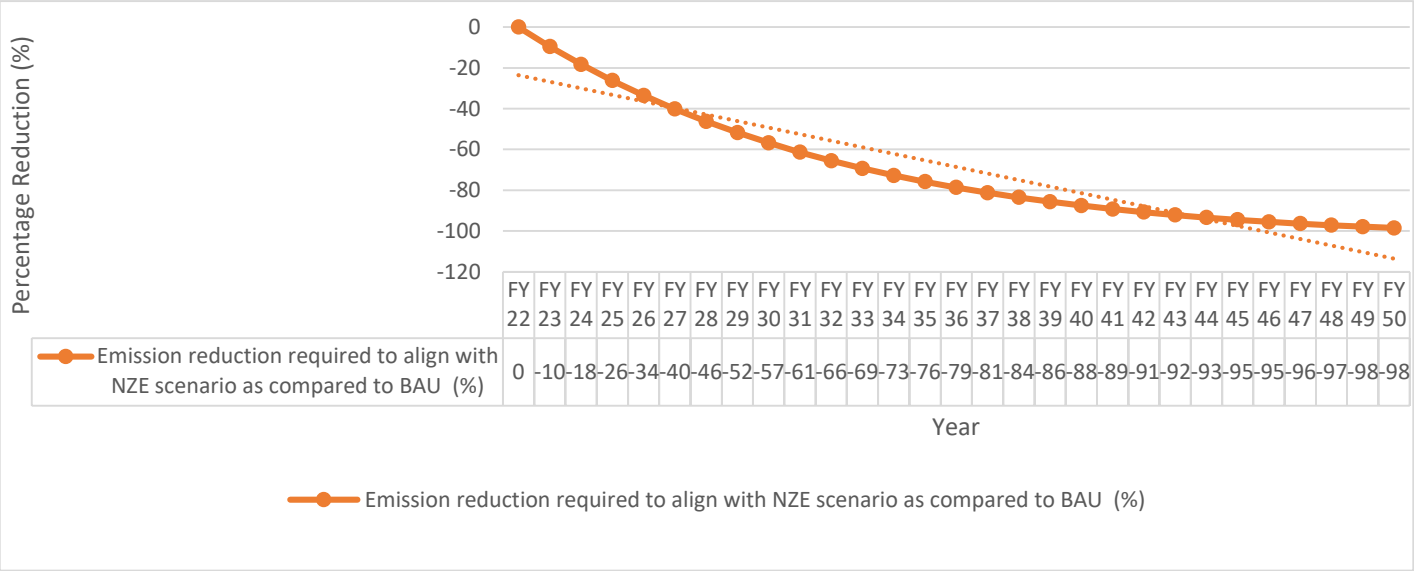


Figure: YOY Percentage Emission Reduction Required to Align with NZE Scenario

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Transition risk scenario analysis results

Sl. No.	Climate related risks	Time Horizon	Risk Description	Potential Financial Impacts	Mitigation & Resilient Actions
Policy & Legal					
A	Increase in renewable energy targets	Short Term	India has committed to achieve Net-Zero by the year 2070. As a part of this initiative, the companies will have to commit to challenging renewable energy targets as a part of decarbonisation strategy to reduce their GHG emissions.	Shift from conventional sources to renewable sources of energy may incur higher investments. However, committing to global targets such has Net Zero would enhance customer preference.	WCL has set a target to become carbon neutral by 2040 and to use 10% RE by 2025 & 20% RE by 2030.
B	PAT (Perform Achieve Trade) mechanism & other legal & regulatory obligations	Short Term	The Perform, Achieve, Trade (PAT) scheme is a regulatory instrument to reduce specific energy consumption in energy intensive industries, with an associated market-based mechanism to enhance the cost effectiveness through certification of excess energy saving which can be traded. WCL-Anjar was identified as designated consumer (DC) under PAT Cycle – II.	There are penalty provisions for non-complying DC as per Energy Conservation Act 2001. Failing to comply with the timelines of M&V procedures, shall be liable for a penalty of Rs. 10 lakhs, in addition to Rs. 10,000 per day for the delayed period.	WCL is fully compliant with PAT regulations. In fact, WCL has seen PAT as an opportunity to be energy efficient and obtain Energy Saving Certificates (ESCerts).
C	Enhanced stakeholder expectation on GHG emission	Short, Medium & Long Term	Stakeholder expectations on disclosure of GHG emission is expected to increase. They also expect efficient monitoring and reduction of y-o-y GHG emissions.	The stakeholder expectation may lead to high investment costs for process and technological interventions to achieve emission reductions. However, addressing the challengers in GHG emission and aligning to the expectation of stakeholder would increase product competitiveness.	WCL is transparently communicating its GHG emission reduction progress and targets through public disclosures. It has adopted several measures for reducing GHG emissions like solar panels. Increased energy efficiency in processes, etc.

Sl. No.	Climate related risks	Time Horizon	Risk Description	Potential Financial Impacts	Mitigation & Resilient Actions
Technology					
D	New products with focus on environment and green energy	Short, Medium & Long Term	Crude oil is a depleting source of energy and is likely to be replaced by cleaner sources of energy.	Decrease in crude oil demand in the global market may have an adverse impact on conventional revenue sources (like oil pipelines). However, shift towards clean energy sources would inchoate alternate use of the product (supply of Green Hydrogen) lead to a surge in demand.	WCL is working towards portfolio diversification with addition of Pig Iron, Ductile Iron Pipes BIS Certified Steel Billets, Direct Reduced Iron, TMT bars, Stainless & Alloy Steel and Stainless-Steel Tubes & Pipes. WCL has a strong R&D team to develop new products like futuristic hydrogen pipeline which has focus on environment and green energy
E	Emerging technologies substituting the existing technology in the production process	Medium Term	Changes in low-carbon technology and manufacturing may cause existing assets to decrease in value and competitiveness.	Technology changes may lead to redundancy of existing assets and adoption of new technology.	Transformative as well as operational innovations are regularly undertaken. There is a dedicated research & development team that focuses on continuous engagement with customers to develop niche products. Separate R&D budget is also allocated. In addition to transformative innovations, there is equal focus on incremental operational innovations that lead to efficiencies or new solutions to serve the customers.
Market					
F	Shift in customer preferences towards	Medium Term	The demand for low carbon steel is increasing and the customers may	To accomplish customer requirements, WCL may prefer to procure low carbon steel to retain the brand value. Due to higher	WCL has forged strong partnerships with its suppliers. It conducts regular customer

Sl. No.	Climate related risks	Time Horizon	Risk Description	Potential Financial Impacts	Mitigation & Resilient Actions
	sustainable products		prefer to procure products made with low carbon steel. Purchasing decisions are increasingly influenced by customers desire to be more sustainable in their value chain.	manufacturing cost, it would incur financial margins on raw material procurements	satisfaction survey and has engagement mechanism in place to sustain strong relationship with customers. WCL undertakes operational savings initiatives to remain cost efficient. WCL also monitors pricing trends of commodities and engages in financial and operational hedging.
Reputation					
G	Brand value & customer loyalty	Medium to long Term	Sustaining the brand value and customer loyalty through fulfilling stakeholder expectation towards better climate resilient operation.	Impact may include the revenue in-balance from decreased demand for products and reduction in capital availability	WCL has aligned all aspects of climate related risks to its business strategies. The company adopts zero tolerance to non-compliance and unethical practices. Moreover, the company is transparently communicating its climate resiliency through public disclosures and is addressing any investor concerns through frequent stakeholder analysis. There is also a well-defined corporate communication and social media policy to manage communication with external stakeholders.
H	Effect on social license to operate	Medium to long Term	A social license to operate (SLO) refers to the perceptions of local stakeholders that an industry that operates in a given	Business impacts due operational disruptions arises in the communities	The company has also undertaken various initiatives like digitizing government schools,

Sl. No.	Climate related risks	Time Horizon	Risk Description	Potential Financial Impacts	Mitigation & Resilient Actions
			area or region is socially acceptable or legitimate. If community resources like water, infrastructure, power etc. are not utilized in a sustainable manner, it may lead to damage in brand image and the communities may object the operations of the company.		promoting women empowerment by creating women entrepreneurs, tree plantation, improving village sanitation, and deepening ponds. WCL is constantly addressing social concerns with the help of a dedicated CSR team. CSR activities are carried out through Welspun Foundation for Health and Knowledge (WFHK). The CSR expenditure in 2020-21 was INR 378 million.

Physical risk scenario analysis results

Sl. No.	Climate related risks	Time Horizon	Risk Description	Potential Financial Impacts	Mitigation & Resilient Actions
Acute Risk					
1	Tropical cyclone	Medium-Long Term	Tropical cyclone risk was assessed using a research paper "Cyclone hazard proneness of districts of India" published by the India Meteorological Department. The hazard proneness has been assessed based on frequency and intensity of cyclone, wind strength, probable maximum precipitation, and probable maximum storm surge. Anjar & Dahej falls under high prone (P2 category) cyclone districts of India.	The potential financial impacts may include increased capital costs due to damage to facilities and increased insurance premiums. The supply chain operations at Anjar & Dahej plants can be affected due to tropical cyclones affecting the region. The operations at Bhopal and Mandya are devoid of any effects due to cyclone since it is not located in close vicinity to coastal areas.	The typical hazards associated with tropical cyclones include storm surges, strong wind, and floods. Anjar & Dahej are prone to risk due to strong winds. However, the building construction is strong & resilient to strong winds. Moreover, the WCL team regularly monitors the weather information to mitigate the risk of supply chain disruptions.
2	Water stress	Short-Medium Term	Water stress risk was assessed for baseline, optimistic and pessimistic scenarios. Water stress risk was found to be extremely high in all the locations as per the baseline scenario. The water risk is projected to increase by 2x times in 2030-2040 from the baseline scenario in Anjar.	The financial impact of water stress may include reduced revenue from decreased production capacity and increased operating costs for sourcing water. It may also lead to increased insurance premiums and the potential for reduced availability of insurance on assets in "high-risk" locations.	WCL has pledged to become water neutral by 2040 and has also taken part in pond deepening initiatives like "Sujalam Sufalam Jal Abhiyaan". WCL has also developed a utility digital dashboard for online monitoring of water consumption. The company has ensured that the operational processes are not water-intensive and that there is no significant impact on water bodies through water withdrawal.
3	Drought	Medium-Long Term	Drought risk was assessed using 'Aqueduct Water Risk Atlas'. Anjar, Mandya & Dahej have high drought risk while Bhopal has medium drought risk. Water scarcity & drought may lead to sanitation problems, impact agriculture and livelihood of farmers, shortage of	Indirect impacts may include increase in operating costs, shortage of labour and may even lead to shutdown of the plant.	

Sl. No.	Climate related risks	Time Horizon	Risk Description	Potential Financial Impacts	Mitigation & Resilient Actions
			drinking water, spread of diseases, migration of workers, civic unrest etc. Increase in water stress may further aggravate drought situation.		
4	Riverine flood	Medium-Long Term	Mandya and Dahej are prone to riverine flood risk with projected inundation depths of greater than 20 decimeters by 2050. Since Mandya is close to the river Kaveri & Shimsha, and Dahej is close to river Narmada, riverine floods can have increased impacts.	The potential financial impact may include reduced revenue from decreased production capacity due to transport difficulties, supply chain interruptions etc.	The weather conditions are constantly monitored to mitigate the risk of supply chain disruptions.
5	Extreme rainfall	Short-Medium Term	The effect of extreme rainfall on various locations in the reporting boundary was assessed using the projected values for the number of days with precipitation greater than 20mm (P>20mm) in a year in 2030, 2040 and 2060. The results were analysed for various scenarios like SSP 1-2.6, SSP 2-4.5 and SSP 5-8.5. Bhopal and Mandya have medium to high risk due to extreme rainfall. *(For additional information on SSP scenarios please refer to annexure A)*	The potential financial impact may include increase in transportation cost, supply chain disruptions, etc.	
Chronic Risk					
6	Heat Wave	Short, Medium and Long Term	The effect of heat wave on various locations in the reporting boundary was assessed using the projected values for the number of extremely hot days (T max > 40^{o}C) in a year in 2030, 2040 and 2060. The results were analysed for various scenarios like SSP 1-2.6, SSP 2-4.5 and SSP 5-8.5.	. The cooling costs is expected to rise for all WCL sites which would increase operating costs. It may also lead higher costs from negative impacts on workers like fatigue, absenteeism, lower productivity, heat stroke etc…	WCL has taken various measures like frequent breaks, availability of potable water, rest rooms etc. to eliminate negative impacts on workers. Plant building is constructed with insulated puff panels to reduce effects of heatwave.

Sl. No.	Climate related risks	Time Horizon	Risk Description	Potential Financial Impacts	Mitigation & Resilient Actions
			All the sites under WCL operations are subjected to potential heat wave conditions with 75-105 extremely hot days per year by 2060		
7	Coastal floods due to sea level rise	Long Term	Rising sea level may lead to frequent coastal flooding, saltwater intrusion into freshwater aquifers, inundation of land, coastal erosion etc… Coastal flood risk due to sea level rise was assessed for 2030, 2050 and 2080 under optimistic and pessimistic scenarios. The inundation depth in 2050 is between 7-20 decimeters indicating a high impact on coastal regions and on the ports whereas the inundation depth in 2080 is beyond 20 decimeters. Dahej may be prone to physical damage due to coastal floods from sea level rise in 2050. Except for Dahej, none of the WCL sites will be affected directly or physically due to coastal floods. However, WCL's supply chain operations rely significantly on the Kandla and Mundra ports. It can cause a significant impact on Welspun's operations in the long term.	The potential impacts can be: ➢ Delay in shipments along with damage to raw materials and finished goods ➢ Port infrastructure improvement costs (dyke construction, flood drainage system, etc.) may lead to indirect impact on procurement costs	WCL has identified critical suppliers and alternate shipment methods (like railways or supply through other ports etc.) to be resilient even amid high impact due to coastal floods.

(Please refer Annexure B for physical risk analysis and physical risk impact analysis)

Climate-Related Opportunities and Potential Financial Impacts

Sl. No.	Climate related Opportunity	Time Horizon	Strategy to Harness	Potential Financial Impact
A	Resource efficiency	Short Term	The following activities were undertaken to improve resource efficiency across locations: • Automation and digitalization of production process • Replacement of higher kW old Canadian hydraulic power packs with lesser kW motors for energy saving of approx. 2,007 units per day • Installation of variable frequency Drives, digital temperature controllers, retrofitting LED lights, replacing the use of furnace oil and LPG with natural gas, switching to efficient pumps, improvements in the HVAC etc.	Reduced operating costs and increase in production capacity, resulting in increased revenues.
B	Energy source	Short-Medium Term	WCL has planned for the installation of solar panels for admin, streetlights, cabin ACs and other areas and solar powered AC for epoxy godown having 365 days operation at Anjar.	There would be an upfront cost in establishing a Solar plant. A high initial investment is required.
C	Products & services	Short-Medium Term	WCL started the ductile iron pipe segment in Anjar owing to exponential growth in urbanization supporting water network.	Better competitive position resulting in increased revenues
D	Markets	Short-Medium Term	WCL seeks to create sustainable value on the journey to be future-ready, through deep-rooted strategic partnerships with marketplace leaders. WCL social mission is enshrined in the 3Es–Education, Empowerment and Environment and Health. Several projects encompassing the 3Es have been taken up by the Welspun Foundation for Health and Knowledge (WFHK). These projects are either run independently powered by Welspun or through nurtured partnerships with the local government or Non-Governmental Organizations (NGOs). WCL has also explored new markets in water infrastructure development and the river interlinking projects aimed at mitigating water risk.	Increased revenues through access to new and emerging markets.

Sl. No.	Climate related Opportunity	Time Horizon	Strategy to Harness	Potential Financial Impact
E	Resilience	Short, Medium & Long Term	WCL has set a target to become carbon neutral by 2040 and to use 10% RE by 2025 & 20% RE. The company has also taken several energy saving and energy efficiency measures to be compliant with PAT obligation.	Increased ability to operate under various conditions including changing legal and compliance laws, technological advancement, changing customer behavior etc.

Climate Change Risk Management

Welspun Corp Limited recognizes the risks that it faces across all business functions, thus it regularly checks the external environment for developing threats and analyses their influence on the company's goals.

The Company is well-served by the board of directors' ESG & CSR committee & risk management committee. These committees make recommendations to the board based on their findings & oversee the management's enterprise-wide risk management initiatives. The Board has also developed a well-structured Enterprise Risk Management (ERM) framework to manage risks. Financial, operational, business, regulatory, compliance, and strategic risks are efficiently managed and addressed through ERM. Environmental risks and opportunities are also identified by ERM and are incorporated into the ERM framework. WCL has a comprehensive occupational health and safety policy in place & environmental management system (ISO 14001) at all its locations.

Our Environmental Management System allows us to track financial details of our environmental projects and programs which are as follows:

Aspect	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22
Capital investments linked to environmental investments	20,20,500	30,92,750	15,04,750	47,97,684
Operating Expenses linked to environmental investments	2,45,34,014	1,81,42,359	1,44,24,554	2,62,24,139
Savings, cost avoidance, income, tax incentives	58,17,400	51,63,412	42,37,117	70,03,974

Risk Identification and Assessment

WCL has developed a strong governance architecture to identify and assess potential risks and develop a risk mitigation strategy. WCL has created a risk-aware culture throughout the organization, as well as a risk management committee at each location (plants and headquarters) to identify risks and track mitigation efforts.

Risk identification is done by utilizing a variety of techniques and methods, such as value chain analysis and operational analysis, as well as interactions, such as questionnaires, interviews, and workshops.

At the corporate level, as well as at the plant and function levels, risk prioritization and monitoring are carried out. Risk management is the responsibility of the plant head and functional heads. Risk management is integrated into the company performance evaluation, and inherent risks are discussed during business review meetings, in addition to the scheduled risk management sessions.

Risk Management and Mitigation

The identified climate related risks are prioritized, and the mitigation measures are developed considering short term and long-term consequences of the risk on the company. The mitigation measures suggested by the management is reviewed by the board.

Risk Monitoring and Reporting

The Group's Risk Management Framework includes climate change-related risks and opportunities. These hazards are categorized as environmental, social, and governance (ESG) concerns, and they include issues such as energy, emissions, and water.

Materiality Assessment

Materiality assessment is a process of identifying and prioritizing key ESG focus areas, relevant to the organization. WCL analyzed industry trends, global frameworks including Sustainability Accounting Standards Board (SASB), Global Reporting Initiative (GRI), ESG metrices, National Voluntary Guidelines (NVGs); and mapped them with the company business objectives and principles. Stakeholder perspectives were also considered to prioritize the material issues and they were also the basis for setting the goals and KPIs.

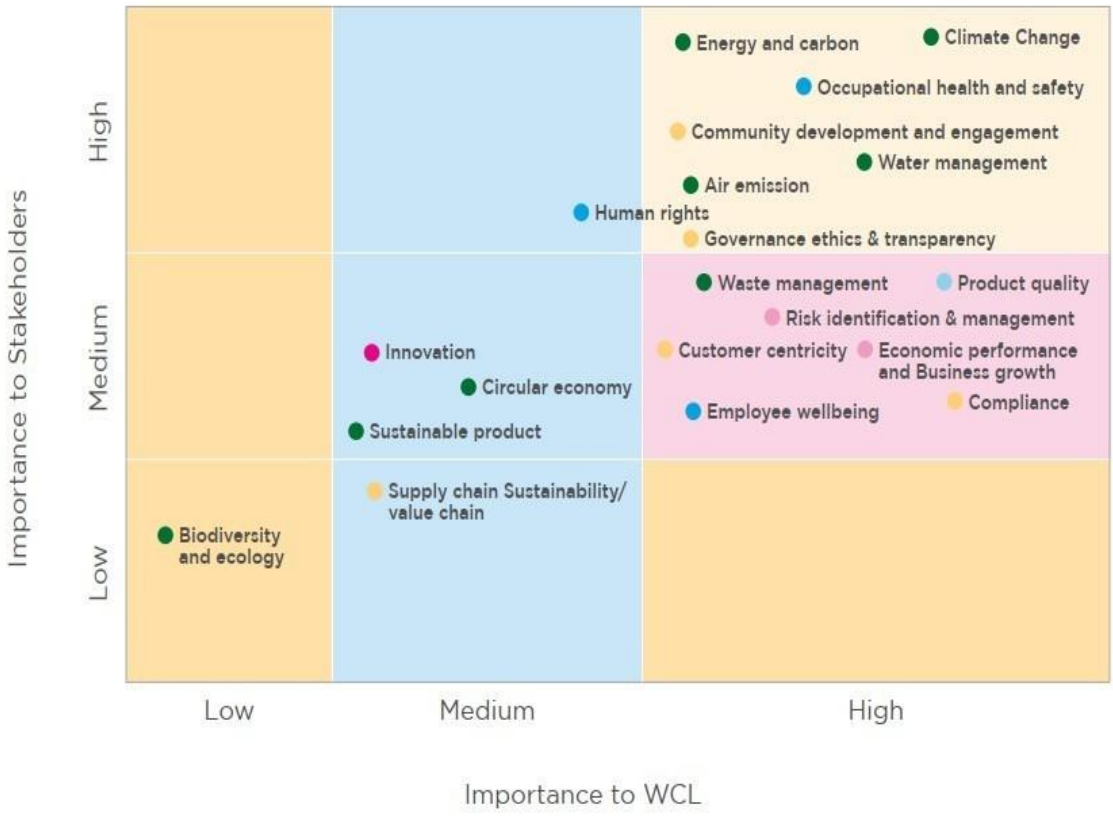

Figure: WCL materiality matrix for 2020-21

Methodology

Sectoral review and relevant stakeholder interactions are done regularly to develop a list of climate change related risks. The risks are assessed based on likelihood of occurrence and degree of consequence. Likelihood is assessed using relevant climate tools or other available resources. The degree of consequence is rated based on the projected or estimated risk impact. The parameters used to determine the degree of consequence include revenue, EBIDTA, reputation and licence to operate and injury or safety.

Risk Score = Risk Likelihood * Degree of Consequence

The inherent risk score is determined by multiplying likelihood rating (from 1-5) with consequence rating (from 1-5). The inherent risk scores are obtained for individual sites as the likelihood and degree of consequence varies based on the geographical location of the industry. The weighted average of these individual risk scores is calculated based on revenue to arrive at the overall risk score of the company

Likelihood						
	Frequent/ Permanent (5)	5	10 Shift in customer preferences	15	20	25
	Probable (4)	4	8 Water Stress	12 Brand Value and Customer Loyalty& Increase in RE target	16	20
	Occasional (3)	3 Tropical cyclones & PAT	6 Drought	9 New products with focus on the environment and green energy	12	15
	Remote (2)	2 Effect on social license to operate & Extreme rainfall	4	6	8 Adoption of Emerging Technologies	10
	Improbable (1)	1 Riverine Flood	2	3	4 Coastal Floods due to sea level rise	5
		Insignificant (1)	Minor (2)	Moderate (3)	Very high (4)	Extreme (5)
		Consequence				

Figure: Inherent risk matrix for WCL

The high inherent risk of heat wave and water stress have been mitigated through implementation of initiatives like installation of insulated puff panels to reduce heatwave effect, developing SOP on heat-stress and imparting awareness and training and implementation of water stewardship programs. Initiatives are also planned to reduce the cooling costs by adopting solar panels. The likelihood of coastal floods due to sea level rise, effect on social license to operate and brand value and customer loyalty is very low but can have dire consequences. The company is also taking several CSR initiatives to reduce social risks.

Metrics and Targets

WCL track and monitor several climate-related metrics to understand physical and transition impacts across the operations. On a site level, the company is tracking and monitoring energy and fuel usage and their associated emissions and water usage across the sites.

Metrics to assess climate-related risks and opportunities

GHG emissions are measured in terms of MT of CO2e. The transition risks and physical risks are measured in amount to which WCL's assets or business activities are vulnerable to climate-related transition and physical risks.

GHG Emissions

Reducing GHG emissions at operated assets is a key component of WCL climate change strategy. The operational control approach was followed for all GHG emissions calculations as per GHG protocol standard guidelines. The relevant emissions sources across WCL operations were considered for determining both direct and indirect emissions. Scope 1 emissions are mainly due to fossil fuel consumption like coal, natural gas, LPG and HSD. Scope 2 emissions are due to purchased electricity. FY 2021-22 is considered as the base year for evaluating the future performance of the company. The scope 1 and scope 2 emissions for FY 2022 was 3,365 tCO_2e and 92,435 tCO_2e respectively.

Climate-related targets and progress

Sl. No.	KPI & Metric	Target
1	Total GHG Emissions (MT of CO2e)	WCL has set a target to become carbon neutral by 2040 and to use 10% RE by 2025 & 20% RE by 2030
	Scope 1 emissions (MT of CO2e)	3,365
	Scope 2 emissions (MT of CO2e)	92,435
2	Water intensity (KL/MT)	WCL has set a target of 0.55 KL/MT, 0.40 KL/MT for FY 2025 & 2030 respectively. It has also set an overarching target to become water neutral by 2040.
3	Waste to landfill (MT)	WCL has set a zero waste to landfill (ZWL) target by 2030 and to limit waste to landfill by 1 MT by 2025.
4	Sustainable Supply Chain (% suppliers assessed as per ESG compliant code of conduct)	100% of critical suppliers to be assessed on ESG parameters by 2025.

Annexure A

SSP Scenarios

Shared Socioeconomic Pathways (SSPs) are scenarios of projected socioeconomic global changes up to 2100. They are used to derive greenhouse gas emissions scenarios with different climate policies. The SSPs provide narratives describing alternative socio-economic developments. The SSPs can be combined with various Integrated Assessment Models (IAMs), to explore possible future pathways both with regards to socioeconomic and climate pathways.

The scenarios are:

- SSP1: Sustainability (Taking the Green Road)
- SSP2: Middle of the Road
- SSP3: Regional Rivalry (A Rocky Road)
- SSP4: Inequality (A Road divided)
- SSP5: Fossil-fuelled Development (Taking the Highway)

SSP1: Sustainability (Taking the Green Road)

The world shifts gradually, but pervasively, toward a more sustainable path, emphasizing more inclusive development that respects perceived environmental boundaries. Management of the global commons slowly improves, educational and health investments accelerate the demographic transition, and the emphasis on economic growth shifts toward a broader emphasis on human well-being. Driven by an increasing commitment to achieving development goals, inequality is reduced both across and within countries. Consumption is oriented toward low material growth and lower resource and energy intensity.

SSP2: Middle of the road

The world follows a path in which social, economic, and technological trends do not shift markedly from historical patterns. Development and income growth proceeds unevenly, with some countries making relatively good progress while others fall short of expectations. Global and national institutions work toward but make slow progress in achieving sustainable development goals. Environmental systems experience degradation, although there are some improvements and overall, the intensity of resource and energy use declines. Global population growth is moderate and levels off in the second half of the century. Income inequality persists or improves only slowly and challenges to reducing vulnerability to societal and environmental changes remain.

SSP3: Regional rivalry (A Rocky Road)

A resurgent (increasing or reviving after a period of little activity, popularity, or occurrence) nationalism, concerns about competitiveness and security, and regional conflicts push countries to increasingly focus on domestic or, at most, regional issues. Policies shift over time to become increasingly oriented toward national and regional security issues. Countries focus on achieving energy and food security goals within their own regions at the expense of broader-based development. Investments in education and technological development decline. Economic development is slow, consumption is material-intensive, and inequalities persist or worsen over time. Population growth is low in industrialized and high in developing countries. A low international priority for addressing environmental concerns leads to strong environmental degradation in some regions.

SSP4: Inequality (A Road Divided)

Highly unequal investments in human capital, combined with increasing disparities in economic opportunity and political power, lead to increasing inequalities and stratification both across and within countries. Over time, a gap widens between an internationally connected society that contributes to knowledge- and capital-intensive sectors of the global economy, and a fragmented collection of lower-income, poorly educated societies that work in a labour intensive, low-tech economy. Social cohesion degrades and conflict and unrest become increasingly common. Technology development is high in the high-tech economy and sectors. The globally connected energy sector diversifies, with investments in both carbon-intensive fuels like coal and unconventional oil, but also low-carbon energy sources. Environmental policies focus on local issues around middle- and high-income areas.

SSP5: Fossil-Fuelled Development (Taking the Highway)

This world places increasing faith in competitive markets, innovation and participatory societies to produce rapid technological progress and development of human capital as the path to sustainable development. Global markets are increasingly integrated. There are also strong investments in health, education, and institutions to enhance human and social capital. At the same time, the push for economic and social development is coupled with the exploitation of abundant fossil fuel resources and the adoption of resource and energy intensive lifestyles around the world. All these factors lead to rapid growth of the global economy, while global population peaks and declines in the 21st century. Local environmental problems like air pollution are successfully managed. There is faith in the ability to effectively manage social and ecological systems, including by geo-engineering if necessary.

The IPCC Sixth Assessment Report introduced new categories ranked by carbon dioxide emissions. The shared socioeconomic pathway number x is combined with the expected radiative forcing y.z in the year 2100 to a scenario ID SSPx-y.z as listed below.

Shared Socioeconomic Pathways in the IPCC Sixth Assessment Report.

SSP	**Scenario** ***(Likelihood)***	**Estimated warming (2041–2060)**	**Estimated warming (2081–2100)**	**Very likely range in °C (2081–2100)**
SSP1-1.9	very low GHG emissions: CO_2 emissions cut to net zero around 2050	1.6 °C	1.4 °C	1.0 – 1.8
SSP1-2.6	low GHG emissions: CO_2 emissions cut to net zero around 2075	1.7 °C	1.8 °C	1.3 – 2.4
SSP2-4.5	intermediate GHG emissions *(likely)*: CO_2 emissions around current levels until 2050, then falling but not reaching net zero by 2100	2.0 °C	2.7 °C	2.1 – 3.5
SSP3-7.0	high GHG emissions *(unlikely)*: CO_2 emissions double by 2100	2.1 °C	3.6 °C	2.8 – 4.6
SSP5-8.5	very high GHG emissions *(highly unlikely)*: CO_2 emissions triple by 2075	2.4 °C	4.4 °C	3.3 – 5.7

Annexure B

Physical Risk Analysis

Risk	Timeline	Anjar	Bhopal	Mandya	Dahej	Parameter	Scale
Heatwave	2030					Number of days with temperature >40 ºC	45-75
	2040						75-105
	2060						>105
Water Stress	Baseline	Extremely High	Extremely High	Extremely High	Extremely High	Ratio of total water withdrawals to available renewable surface and groundwater supplies. Unit of measurement expressed as a change from baseline	Near Normal
	2030						1.4x - 2.X
	2040						> 2X
Drought	2030					Analysis of historical precipitation deficits, population and livestock densities, crop cover and water stress	Low
	2040						Medium
	2060						High
Coastal Floods due to Sea Level Rise	2030					Inundation Depth (Decimetres)	0 - 6
	2050						10 to 19
	2080						>20

Risk	Timeline	Anjar	Bhopal	Mandya	Dahej	Parameter	Scale
Tropical Cyclones	2030					Wind Speed, Frequency of cyclones, Probable Maximum Precipitation, Probable Maximum Storm Surge	Low
	2040						Medium
	2060						High
Riverine Floods	2030					Inundation Depth (Decimetres)	0 - 9
	2050						10 to 19
	2080						>20
Extreme Rainfall	2030					Number of days with precipitation >20 mm	<10
	2050						10 to 20
	2080						>20
Wildfire	2030					All fresh detections and continuing forest fires detected by Forest Survey of India	Low
	2050						Medium
	2080						High

Physical Risk Impact Analysis

Risk	Impacts	Anjar 2030	Anjar 2040	Anjar 2060	Bhopal 2030	Bhopal 2040	Bhopal 2060	Mandya 2030	Mandya 2040	Mandya 2060	Dahej 2030	Dahej 2040	Dahej 2060
Heatwave	Worker Fatigue												
	Availability of Water												
	Increased Energy Costs												
	Increase in Power Demand												
Water Stress & Drought	Migration of Workforce												
	Operational Efficiency												
	Salinity of Soil				NA			NA					
	Water impact in the supply chain												
Coastal Floods due to Sea Level Rise	Delay in shipments along with damage to raw materials and finished goods				NA			NA					
	Port Infrastructure improvement will have indirect impact on procurement costs												

*No direct impact to Welspun infrastructure or operations due to coastal floods

NA	Not Applicable / No Impact		Low Impact		Medium Impact		High Impact

Risk	Impacts	Anjar 2030	Anjar 2040	Anjar 2060	Bhopal 2030	Bhopal 2040	Bhopal 2060	Mandya 2030	Mandya 2040	Mandya 2060	Dahej 2030	Dahej 2040	Dahej 2060
Tropical Cyclones	Infrastructure damage				NA			NA					
	Worker / Employee Safety												
	Loss of work hours												
	Flash Floods												
Riverine Floods	Supply Chain	NA			NA								
	Flash Floods												
Exreme Rainfall	Flash Floods	NA			NA								
	Worker Health & Absenteeism												

NA	Not Applicable / No Impact		Low Impact		Medium Impact		High Impact

Annexure C

Alignment with TCFD

WIL is aligned with TCFD guidelines for the climate-related disclosures. The details on TCFD disclosures can be found in the following pages:

S.no	Disclosure	TCFD disclosure	Section	Page
1	Disclose the organization's governance around climate-related issues and opportunities	Governance 1: Describe the board's oversight of climate-related risks and opportunities.	Climate Change Governance at WIL	Page 7 - 9
		Governance 2: Describe management's role in assessing and managing climate-related risks and opportunities.		
2	Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's business, strategy, and financial planning where such information is material.	Strategy 1: Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.	Strategy	Page 9 - 15
		Strategy 2: Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.		
		Strategy 3: Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.		
3	Disclose how the organization identifies, assesses, and manages climate-related risks.	Risk Management 1: Describe the organization's processes for identifying and assessing climate-related risks.	Climate Change Risk Management	Page 16-22
		Risk Management 2: Describe the organization's processes for managing climate-related risks.		
		Risk Management 3: Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.		

4	Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.	Metrics and targets 1: Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.	Metrics and Targets	Page 22-23
		Metrics and targets 2: Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.		
		Metrics and targets 3: Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.		