

TCFD REPORT



TASK FORCE ON
CLIMATE-RELATED
FINANCIAL DISCLOSURES



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About the Company

Granules India Limited is a leading global pharmaceutical company headquartered in Hyderabad, India. It has a strong track record of innovation and excellence in the manufacturing of high-quality Active Pharmaceutical Ingredients (APIs), Pharmaceutical Formulation Intermediates (PFIs), Finished Dosages (FDFs), Oncology, High Potent APIs, and Finished Dosage Forms. Granules India is committed to providing access to safe, effective, and affordable medicines to customers around the world. The company is also a leading contract manufacturer for global pharmaceutical companies. It is a leading manufacturer of several key products, including Paracetamol, Metformin, Ibuprofen, Methocarbamol, Guaifenesin, and Oncology products produced in state-of-the-art manufacturing facilities spread across India and USA, and approved by leading Regulatory Authorities such as USFDA, EU GMP and WHO. It's 60+ products are marketed globally to more than 300 customers across 80 countries.

Granules has been unrelenting in the pursuit of excellence for four decades and now adding a new chapter to its endeavour, as it embarks on a transformative journey driven by innovation and sustainability and enabled by its ability to leverage science and its progress.

Granules India Limited has revitalized its purpose ensuring to embody its commitment to sustainability driven transformation. Our purpose is ***"Healing lives responsibly through pioneering green science"*** Addressing climate change is an immediate and pressing priority. Driven by a strong sense of environmental responsibility, Granules is dedicated to achieving Net Zero by 2050. Granules India Limited perceives climate related challenges as catalysts for innovation, inspiring the development of solutions that drive positive change.

In pursuit of revolutionizing manufacturing and transforming pharmaceutical supply chain, Granules is establishing an integrated green pharmaceutical zone (GPZ) in Kakinada, Andhra Pradesh, as part of Granules CZRO. Granules CZRO aims to harmonize growth and sustainability by harnessing renewable energy, sustainable raw materials and embracing the principles of a circular economy.

With sustainability as guiding compass, Granules is committed to a path that is environmentally responsible and economically viable. With these pioneering initiatives, Granules seeks to redefine the boundaries of what is possible, while nurturing strong relationships with its stakeholders and creating lasting value for everyone.

About this Report

This report has been developed in accordance with the Task Force on Climate-related Financial Disclosures (TCFD) recommendations and it covers **Granules** manufacturing units (And Subsidiaries located at India and USA) and offices, and R&D facilities . The report describes the use of scenario analysis to evaluate the resilience of **Granules** 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. The below table highlights the Granules assets which are considered for risk evaluation under TCFD.

In this report, the company describes how climate change scenarios may impact its business and outline the company's strategy to mitigate those potential impacts and ensure **Granules** resilience. The company's understanding of the challenges associated with climate change is evolving and it continuously updates its plans accordingly. It recognizes the deep and intricate connections between responsible operations and the planet's health, as well as the importance of a changing climate for the company's own future. While the focus of this report is on Granules plan to reduce the transitional and physical risks that climate change poses to the industry, **Granules** is also working to mitigate climate change at its source. To contribute to the development of a more sustainable future, Granules continually undertakes initiatives and programmes that reduce environmental impacts.

About this Report

Granules India Limited

S.No.	Facility name	Facility address
1	Head office	2nd Floor, Block III, My Home Hub, Madhapur, Hyderabad – 500081
2	Finished Dosage Unit	160/A, 161/E, 162 & 174/A, Gagillapur Village, Dundigal Gandimaisamma Mandal, Medchal-Malkajgiri District – 500 043, Telangana State, India.
3	API Unit – I	Sy. No. 533, 535, 536, 537 Temple Road, Bonthapally Village, Gummadidala Mandal, Sangareddy District – 502 313, Telangana State, India
4	API Unit – II	Plot No. 15A/1, Phase III, IDA Jeedimetla, Qutubullapur Mandal, Medchal-Malkajgiri District, Hyderabad – 500 055, Telangana State, India.
5	API Unit – III	Sy.No.216, Bonthapally Village, Gummadidala Mandal, Sangareddy District – 502 313, Telangana State, India.
6	API Unit – IV	Plot No 8, J.N. Pharma City, Tadi Village, Parawada Mandal, Anakapalli District – 531 019, Andhra Pradesh, India.
7	API Unit – V	Plot No. 30, J. N. Pharma City, Parawada Mandal, Anakapalli District – 531 019, Andhra Pradesh, India
8	R&D Unit -1	Plot No. 56, Road No. 5, ALEAP Industrial Area, Pragathi Nagar, Gajularamaram Village, Qutbullapur Mandal, Medchal-Malkajgiri District, Hyderabad – 500 072, Telangana State, India.
9	R&D Unit -2	Survey Nos. 234/1 to 4 and 6 to 7, 235 /6 to 9 and 245/1 to 3, India Land Global Industrial Park, Hinjewadi Phase -1, Mulshi Taluka, Pune District – 411 057, Maharashtra State, India
10	R&D Unit -3	H.No.5-33, Sy No.352, Plot No. 8, Road No. 2, ALEAP Industrial Area, Pragathi Nagar, Gajularamaram village, Qutbullapur Mandal, Medchal-Malkajgiri District, Hyderabad – 500 072, Telangana State, India.
11	R&D Unit -4	Lab No: 11 & 13, Building No:1800, Sy No. 101,101/2 & 340, M. N. Park, Genome Valley, Lalgadi Malakpet Village, Shameerpet Mandal, Medchal-Malkajgiri District, 500 078, Telangana State, India.

Granules (Subsidiaries)

S.No.	Facility name	Country	Facility address
1	Granules USA Inc	USA	35 Waterview Blvd., 3rd Floor, Parsippany, NJ - 07054, USA.
2	Granules Pharmaceuticals Inc	USA	3701 Concorde Parkway, Chantilly, VA - 20151, USA
3	Granules Life Sciences Private Limited	India	Sy.Nos. 325-326, 333- 336, 340-346, Lalgadimalakpet, Medchal-Malkajgiri district 500078, Telangana, India
4	Granules CZRO Private Limited	India	PLOT No. 120, 121(Part), Visakha Pharmacy Limited - SEZ, Jawaharlal Nehru Pharma City, Parwada Mandal, Anakapalle District, Andhra Pradesh, India

Executive Summary

Granules 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.

Granules has assessed the climate risks to the organization based on 4 pillars as recommended by the TCFD. They are governance, strategy, risk management, and metrics and targets.

Four Pillars of TCFD

Governance	Strategy	Risk Management	Metrics and Targets
Disclose the organization's governance around climate-related risks and opportunities.	Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning where such information is material.	Disclose how the organization identifies, assesses, and manages climate-related risks.	Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material..

Climate risk assessment is an integral part of TCFD that helps to understand the current and future climate-related risks of an organization. Climate risk assessment is accounted to further enhance sustainability actions. Granules analyzed the two integral risks as per the TCFD guidelines: Physical Risks and Transition Risks. Physical risks correspond to the potential economic and financial losses caused by climate-related weather events and phenomena. Transition risks relate to the risks of economic and financial losses associated with the process of adjusting toward a low-carbon economy.

The assessment of the associated physical and transition risks was carried out for Granules Manufacturing plant including officers ,R&D Facilities and key supplier locations .

Granules considered three-time horizons for assessing climate-related risks. Risks arising up to 2030 were considered as short term, 2040 as medium-term, and above 2050 as long term.

Climate risks present a unique challenge to organizations, based on their nonlinearity, geographic heterogeneity, and presence of potential amplifiers and mitigants impacting quantification and assessment of their impacts.

About TCFD

It is an organization that was established in December of 2015 by Basel (Switzerland) – based Financial Stability Board (FSB) and chaired by the co – founder of Bloomberg L.P., Michael Bloomberg with goal to develop guidelines for voluntary climate – related financial risk disclosures across industries.

These disclosures would ideally be adopted by companies which would help inform investors and public stakeholders about the risks they face related to climate change.

The disclosure recommendations are structured around the four – thematic areas that represent core elements of business operations in the background of changing climate:



Core Pillars of the TCFD

Thematic areas of TCFD

Thematic areas of TCFD recommendations

S.No.	Areas	Description	Recommended disclosure
1	Governance	Disclose the org. governance around climate – related risks & opportunities.	<p>a. Describe the board’s oversight of climate – related risks & opportunities.</p> <p>b. Describe management’s role in assessing & managing climate – related risks & opportunities.</p>
2	Strategy	Disclose the actual & potential impacts of climate – related risks & opportunities on org. businesses, strategy & financial planning where such information is material.	<p>a. Describe the climate – related risks & opportunities the org. has identified over short, medium & long term.</p> <p>b. Describe the impact of climate – related risks & opportunities on the org. businesses, strategy & financial planning.</p> <p>c. Describe the resilience of org. strategy, taking into consideration different climate – related scenarios, including a 2°C or lower scenario.</p>
3	Risk management	Disclose how the org. identifies, assesses & manages climate – related risks.	<p>a. Describe the org. processes for identifying & assessing climate – related risks.</p> <p>b. Describe the org. processes for managing climate – related risks.</p> <p>c. Describe how processes for identifying assessing & managing climate – related risks are integrated into org. overall risk management.</p>
4	Metrics & targets	Disclose the metrics & targets used to assess & manage relevant climate – related risks & opportunities where such information is material.	<p>a. Disclose the metrics used by org. to assess climate – related risks & opportunities in line with its strategy & risk management process.</p> <p>b. Disclose Scope 1, Scope 2 & if appropriate, Scope 3 greenhouse gas (GHG) emissions & related risks.</p> <p>c. Describe the targets used by org. to manage climate –related risks & opportunities & performance against targets.</p>

Governance

Granules recognizes the importance of a robust risk management system that aligns business decisions with identified and emerging risks. Our risk management policy and framework provides a comprehensive view of our risk exposures and facilitates proactive mitigation.

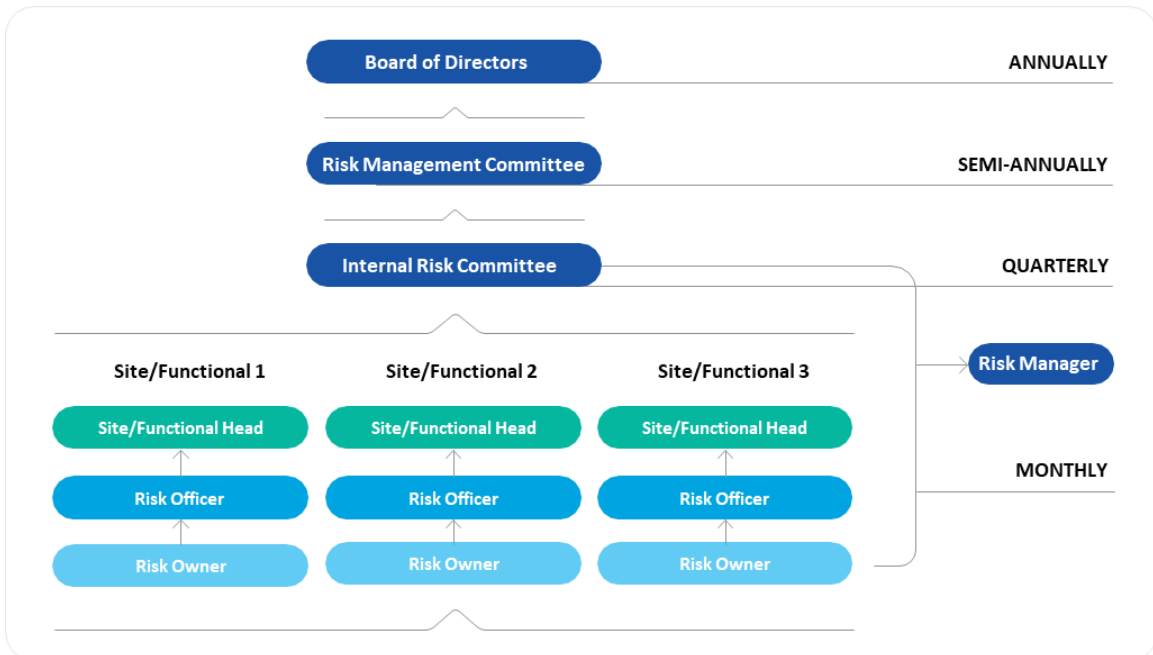
A holistic **Enterprise Risk Management (ERM)** program facilitates identifying, assessing, and prioritizing enterprise risks across our sites and functions. We have developed risk repositories for each site and function, based on which the enterprise risks are identified and prioritized for effective and timely risk mitigation. Our ERM program aims to minimize and mitigate potential internal and external risks to achieve strategic objectives and explore opportunities in a risk informed manner to protect and enhance value.

Risk management is viewed as an integral part of our business. Constituent committees and risk practitioners have roles and responsibilities defined to promote accountability for risk management across the organization.

The **Risk Management Committee (RMC)**, a sub committee of the Board, guides the implementation of the risk management policy, reviews the effectiveness of the risk management system, and evaluates the enterprise risk profile. We update the Board of Directors and take inputs on the risk profile and mitigations for identified enterprise risks.

The risk governance structure facilitates a combination of a top down and bottom-up approach to risk management permeating the organization. The leadership team identifies and assesses long-term and strategic risks, informed by internal and external perspectives, in consideration of business priorities and objectives.

Risk Governance at Granules



To ensure a focused and cross functional approach to risk mitigation, an Internal Risk Committee is set up that meets and deliberates on identified enterprise risks every quarter, in addition to external events and their potential impact on GIL's operations. The Internal Risk Committee (IRC), comprising senior executives and functional heads, undertakes a detailed review of the enterprise risks, whereby response plans and key risk indicators (KRIs) are tracked and reviewed for status evaluation and actions identified in case of breach of KRIs. IRC and RMC also assess and evaluate the impact of internal and external events, and the adequacy of associated mitigation plans as part of the risk reviews.

The CFO and the Risk Manager facilitate ERM initiatives across the Company and coordinates with site and functional heads for key enterprise risks and associated response plans. The CFO and the Risk Manager, supported by the ERM Coordinator, ensures the implementation of the ERM program across the sites and functions and aggregates the enterprise risk register.

Risk officers are nominated for each site and function, to ensure risk ownership is embedded. These officers support risk management activities within their respective sites and functions. Risk officers promote focused discussions on identified risks related to their assigned processes, and periodically assess and monitor the risks and associated response plans.

Risk Management Process at Granules

The risk management framework adopted by Granules aligns with the ISO Standard 31000:2018 Risk Management – Guidelines and COSO 2017, which integrates strategy and performance. We evaluate risks regularly to implement necessary countermeasures on a timely basis. The framework enables the identification of a broad spectrum of risks, including sectoral (industry risks), sustainability, extended enterprise, talent, and cybersecurity risks, and links risk data at different levels through key risk indicators (KRIs), thereby facilitating monitoring and reallocation of resources to mitigate enterprise risks. Based on the International Integrated Reporting Council's (IIRC) six capitals, we have also defined our risk appetite with tolerance limits to assess the impact of risks in achieving our strategic objectives and guiding management decision-making



Indicative Enterprise Risks Themes

The enterprise risks are reviewed periodically by the constituent committees within the organization. The following list illustrates the enterprise risks we identified impacting our operations and strategic objectives. Accordingly, we have implemented appropriate response plans:

- **Compliance to Quality Guidelines and Standards**
- **Health and Safety Risks**
- **Cyberattacks, Security Breaches of IT and OT Systems, Data Protection and Privacy Controls**
- **Ability to attract, retain and upskill talent**
- **Sustainability and ESG Risk**

Sustainability and ESG Risk

Delays or challenges to meet stakeholders' expectations and achieve publicly declared ESG commitments, can lead to adverse reputational/ business impact. Additionally, our business and operations are subject to risks related to climate change resulting in physical and transitional risks.

To mitigate sustainability risks, we have developed a comprehensive Sustainability Governance Mechanism, including a dedicated sustainability committee to oversee ESG matters. We have defined organizational KPIs for both short-term and long-term ESG goals, ensuring alignment across the organization. Our Sustainable Sourcing Framework is being institutionalized to embed sustainability in procurement practices.

Additionally, we have finalized a Net Zero 2050 roadmap, outlining our decarbonization strategies for Scope 1, 2, and 3 emissions. Our CZRO project, aimed at addressing Scope 3 emissions through green molecule platform, commenced pilot-scale operations in March 2024. We have initiated key projects to increase the use of renewable energy, including adopting renewable energy through Power Purchasing Agreements (PPAs), Renewable Energy Credits (RECs), and efficiency improvement measures. We are adopting eco-friendly technologies such as biocatalysis and integrating sustainability into product development through an Eco-scale and green scorecard system, encompassing six categories and 38 parameters.

These initiatives collectively reinforce our commitment to sustainability and our proactive approach to mitigating associated risks.

- Our focus and emphasis on risk management as a strategic pillar enables us to **anticipate challenges, adapt swiftly to market dynamics, and innovate continuously**.
- Granules is committed to **fostering a risk-intelligent and risk-aware culture** that permeates both our organization and our external relationships.
- Through efforts to continuously improve the ERM program, Granules aspires to **set new standards of excellence, driving sustainable growth and long-term success** for our Company and its stakeholders



Strategy

1) Assessment of Climate Risk

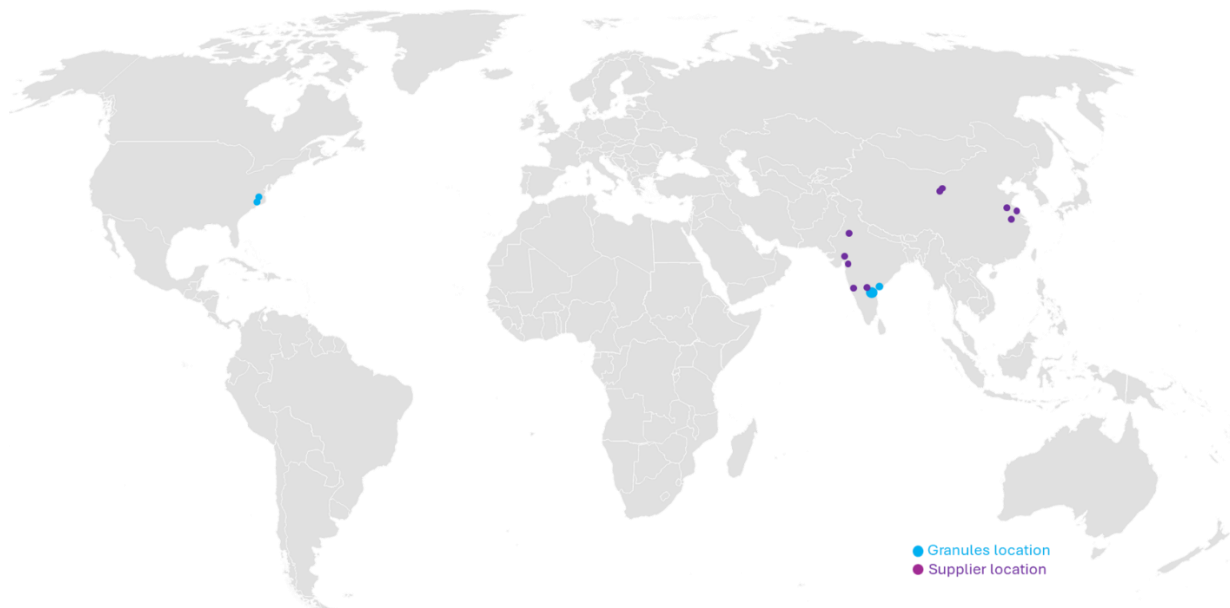
For the physical risk assessment, we have used the Intergovernmental Panel on Climate Change (IPCC) scenarios to evaluate the impacts of climate change on our manufacturing units, considering both the ‘**Optimistic**’ scenario (RCP 4.5) and the ‘**Business as Usual**’ scenario (RCP 8.5).

Climate Scenario	Warming trajectory by 2100	Description	Rationale behind climate scenario analysis selection
RCP 4.5	1.8°C (1.1 – 2.6°C)	Known as Optimistic, Intermediate, or Lower emission scenario (a)	It allows us to examine our business strategy against the most optimistic scenario from a climate – transition perspective and aligns with our target to be a net – zero business by 2050. It represents the ‘worst case’/highest potential for transition risk for our business.
RCP 8.5	3.7°C (2.6 – 4.8°C)	Known as Business as Usual, or Higher emission scenario (b)	It examines our business strategy against the worst-case scenario from a physical risk perspective.

We define the short, medium and long-term horizons as follows:

- **Short-term / Baseline (0–4 years):** Aligns to our short-term Climate and Environmental targets.
- **Medium-term (2030):** Aligns to our interim Scopes 1, 2 and 3 emissions reduction targets of 2030.
- **Long-term (2050):** Aligns with our goal of achieving the Net Zero target by 2050.

The probable impacts of the physical risks of climate change over the RCP 4.5 and RCP 8.5 scenarios for the short, medium, and long term is evaluated to determine the risk levels at our manufacturing facilities and key supplier's sites in the subsequent pages



Location of the Manufacturing Facilities					
S. No.	Name	State/Country	Address	Coordinates	
				Latitude	Longitude
1	API Unit – I	Telangana, India	Bonthapally Village, Gummadidala Mandal, Sangareddy – 502313.	17.654	78.358
2	API Unit – III	Telangana, India	Bonthapally Village, Gummadidala Mandal, Sangareddy – 502313.	17.654	78.358
3	API Unit – II	Telangana, India	Jeedimetla, Qutubullapur Mandal, Medchal – Malkajiri – 500055.	17.530	78.440
4	FD unit Gagillapur	Telangana, India	Gagillapur Village, Dundigal Gandimaisamma Mandal, Medchal–Malkajiri –500043.	17.598	78.392
5	API Unit – IV	Andhra Pradesh, India	J.N. Pharma City, Tadi Village, Parawada Mandal, Visakhapatnam – 531019.	17.668	83.076
6	API Unit – V	Andhra Pradesh, India	J.N. Pharma City, Parawada Mandal, Visakhapatnam – 531019.	17.657	83.082
7.	GPI USA	Virginia, United States	Concorde Pkwy, Chantilly, 20151.	38.910	-77.447
8.	GPAK USA	Virginia, United States	Cushing Rd, Manassas, 20109.	38.793	-77.558

Locations of Key Suppliers					
S. No.	Name	State/Country	Address	Coordinates	
				Latitude	Longitude
1.	Taixing Yangzi Pharm Chemical Co. Ltd.	Jiangsu, China	Taizhou	32.172	120.014
2.	Anhui Bayi Chemical Industry Co Ltd	Anhui, China	Bengbu	32.935	117.353
3.	Jubilant Ingrevia Ltd	Gujarat, India	Bharuch	18.099	74.217
4.	Ashland Speciality Chemical	Maharashtra, India	Panvel, Raigad	29.375	47.980
5.	IOL Chemicals and Pharmaceutical	Punjab, India	Barnala	30.383	75.546
6.	Colorcon Asia Pvt Ltd	Goa, India	Verna, South Goa	18.950	72.952
7.	Balaji Amines Ltd	Telangana, India	Hyderabad, Telangana	17.514	78.513
8.	Ningxia Beillite Chemical	Ningxia, China	Yin Chuan Shi	38.485	106.225
9.	Solvay Specialty Chemicals	Jiangsu, China	Zhenjiang	32.210	119.455
10.	Ningxia Jiafeng Chemicals Co., Ltd	Ningxia, China	Shizulshan	38.485	106.225



Physical Risks

Physical Risks	Description	Impact on the Business
Water	Our multiple manufacturing locations are subjected to high water risks in medium – and long – term due to rising temperatures, decrease in rainfall and groundwater level, associated with increase a population levels and urbanization/industrialization, leading to more demand for the water resources.	Water risks could lead to high operating costs for the manufacturing units due to water procurement from the third party or private sources. In addition, reduction in water supply can also affect the operational efficiency, leading to reduction in the production capacity.
Drought	The prevalence of drought at some of our manufacturing locations could lead to high exposure to the third party of the water procurement, high water procurement costs	
Floods	With the changing climate, we expect increased exposure to the flooding due to tropical cyclones and heavy rainfall especially in the coastal districts, which can disrupt or delay the manufacturing processes (due to property and/or infrastructure damages, or repairs, freshwater availability, etc.) and further lead to the supply chain disruptions.	The risks related to floods have critical repercussions due to infrastructure/property damages, power outages and operational shutdown, which can further lead to supply chain disruptions due to unavailability of raw materials and other products resulting in production losses.
Extreme Heat	Enhanced exposure to the extreme heat will lead to increased operating costs for the energy consumption and cooling needs (or HVAC devices) to ensure the optimum efficiency of our equipment and processes. Additionally, increase in heat waves may lead to illnesses such as heatstroke, reduce labour productivity and further impacting supply chains through increased stress on cold – chain logistics.	Exposure to excessive heat during work restricts physical capability, work capacity & productivity of workers. Regular exposure to thermally stressful environments can cause negative health impacts leading to loss of man-days and/or reduce productivity of employees.
Cyclone	The intensity and frequency of tropical cyclones is expected to rise in the Bay of Bengal which can disrupt or delay the manufacturing processes (due to property and/or infrastructure damages, or repairs, freshwater availability, etc.) and further lead to the supply chain disruptions such as transportation networks (e.g. delaying delivery of raw materials to sites or finished products).	The landfall of the cyclone result in the infrastructure damage, uprooting of trees or overhead installations affecting the operations. It can also impact supply chain by making ports and other transportation services inaccessible.

Plant - wise Physical Risks Assessment

API Unit – I and API Unit – III, Telangana, India

Site Name: API Unit - I and API Unit - III
Location: Sangareddy, Telangana, India

Risks	Optimistic Scenario (RCP 4.5)			Business As Usual Scenario (RCP 8.5)		
	Baseline (2024)	Medium (2030)	Long (2050)	Baseline (2024)	Medium (2030)	Long (2050)
Water	High Risk	High Risk	High Risk	High Risk	High Risk	High Risk
Drought	Moderate Risk	High Risk	High Risk	Moderate Risk	High Risk	High Risk
Flood	Moderate Risk	High Risk	High Risk	Moderate Risk	High Risk	High Risk
Extreme Heat	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk
Cyclones	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk
Seismic	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk

Our API Unit – I and API Unit – III are located at Bonthapally village, in Gummadidala Mandal, Sangareddy district, Telangana, India, which is predominantly exposed to the water, drought, and flood risks under both scenarios from baseline to long – term.

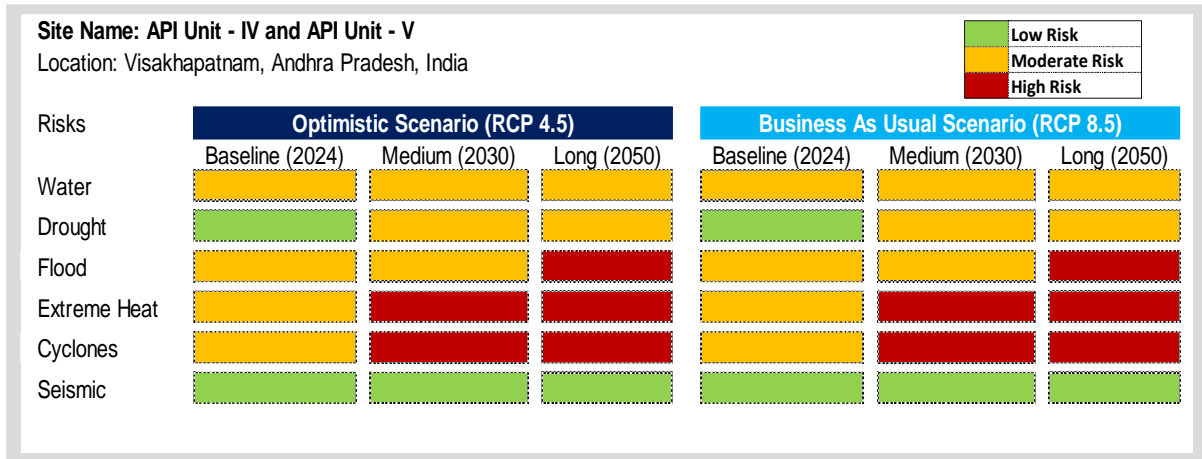
API Unit – II and FDI Unit – GGP, Telangana, India

Site Name: API Unit - II & GGP
Location: Medchal-Malkajgiri, Telangana, India

Risks	Optimistic Scenario (RCP 4.5)			Business As Usual Scenario (RCP 8.5)		
	Baseline (2024)	Medium (2030)	Long (2050)	Baseline (2024)	Medium (2030)	Long (2050)
Water	High Risk	High Risk	High Risk	High Risk	High Risk	High Risk
Drought	Moderate Risk	High Risk	High Risk	Moderate Risk	High Risk	High Risk
Flood	Moderate Risk	High Risk	High Risk	Moderate Risk	High Risk	High Risk
Extreme Heat	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk
Cyclones	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk
Seismic	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk

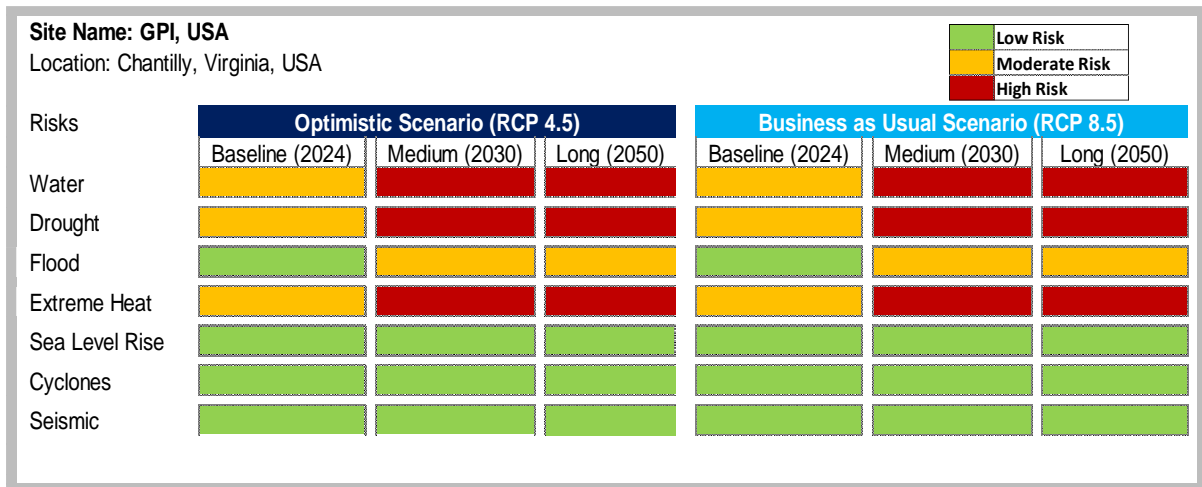
Our API Unit – IV is located in Qutubullapur Mandal and FDI Unit – GGP is located in Dundigal Gandimaisamma Mandal of Medchal–Malkajgiri district, Telangana, India, which is predominantly exposed to the water, drought, and flood risks under both scenarios from baseline to long – term.

API Unit – IV and API Unit – V, Andhra Pradesh, India



Our API Unit – IV and API Unit – V is located in Parawada Mandal of the Vishakhapatnam district, Andhra Pradesh, India, which is predominantly exposed to the extreme heat, cyclones and water risks under both scenarios from baseline to long – term. Additionally, the business operations are also expected to be increasingly vulnerable to drought risk under both scenarios in the medium to long – term.

GPI, Virginia, USA



Our GPI unit is located in Chantilly, Virginia, USA, which is predominantly exposed to the water, drought and extreme heat risks under both scenarios from baseline to long – term. Additionally, the business operations are also expected to be increasingly vulnerable to flood risk under both scenarios in the medium to long – term.

GPAK, Virginia, USA

Site Name: GPAK, USA (Step down Subsidiary of GUSA)

Location: Manassas, Virginia, USA

	Low Risk
	Moderate Risk
	High Risk

Risks	Optimistic Scenario (RCP 4.5)			Business As Usual Scenario (RCP 8.5)		
	Baseline (2024)	Medium (2030)	Long (2050)	Baseline (2024)	Medium (2030)	Long (2050)
Water						
Drought						
Flood						
Extreme Heat						
Sea Level Rise						
Cyclones						
Seismic						

Our GPAK unit is located in Manassas, Virginia, USA, which is predominantly exposed to the water, drought and extreme heat risks under both scenarios from baseline to long – term. Additionally, the business operations are also expected to be increasingly vulnerable to flood risk under both scenarios in the medium to long – term.



Physical Climate Risks Assessment of Key Suppliers

Taixing Yangzi Pharm Chemical Co. Ltd, Jiangsu, China

Supplier Name: Taixing Yangzi Pharm Chemical Co. Ltd Location: Taizhou, Jiangsu, China		<table border="1"> <tr><td>Low Risk</td></tr> <tr><td>Moderate Risk</td></tr> <tr><td>High Risk</td></tr> </table>						Low Risk	Moderate Risk	High Risk
Low Risk										
Moderate Risk										
High Risk										
Risks	Optimistic Scenario (RCP 4.5)			Business As Usual Scenario (RCP 8.5)						
	Baseline (2024)	Medium (2030)	Long (2050)	Baseline (2024)	Medium (2030)	Long (2050)				
Water	Moderate Risk	Moderate Risk	Moderate Risk	Moderate Risk	Moderate Risk	Moderate Risk				
Drought	High Risk	High Risk	High Risk	High Risk	High Risk	High Risk				
Flood	Low Risk	Moderate Risk	High Risk	Low Risk	High Risk	High Risk				
Extreme Heat	Low Risk	Moderate Risk	Moderate Risk	Low Risk	Moderate Risk	Moderate Risk				
Sea Level Rise	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk				
Cyclones	Moderate Risk	Moderate Risk	High Risk	Moderate Risk	High Risk	High Risk				
Seismic	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk				

The supplier based in Taizhou, Jiangsu, China is expected to be predominantly exposed to drought risk under both scenarios from the baseline to long – term. Additionally, the business operations are also expected to be increasingly vulnerable to floods and cyclones under both scenarios in the medium to long – term.

Anhui Bayi Chemical Industry Co Ltd, Anhui, China

Supplier Name: Anhui Bayi Chemical Industry Co. Ltd. Location: Bengbu, Anhui, China		<table border="1"> <tr><td>Low Risk</td></tr> <tr><td>Moderate Risk</td></tr> <tr><td>High Risk</td></tr> </table>						Low Risk	Moderate Risk	High Risk
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Risks	Optimistic Scenario (RCP 4.5)			Business As Usual Scenario (RCP 8.5)						
	Baseline (2024)	Medium (2030)	Long (2050)	Baseline (2024)	Medium (2030)	Long (2050)				
Water	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk				
Drought	High Risk	High Risk	High Risk	High Risk	High Risk	High Risk				
Flood	Moderate Risk	Moderate Risk	Moderate Risk	Moderate Risk	Moderate Risk	High Risk				
Extreme Heat	Low Risk	Moderate Risk	Moderate Risk	Low Risk	Moderate Risk	Moderate Risk				
Sea Level Rise	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk				
Cyclones	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk				
Seismic	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk				

The supplier based in Bengbu, Anhui, China is expected to be predominantly exposed to drought risk under both scenarios from the baseline to long – term. Additionally, the business operations are also expected to be increasingly vulnerable to flood and extreme heat risks under both scenarios.

Jubilant Ingrevia Ltd, Gujarat, India

Supplier Name: Jubilant Ingrevia Ltd								
Location: Bharuch, Gujarat, India								
			<table border="1"> <tr><td>Low Risk</td></tr> <tr><td>Moderate Risk</td></tr> <tr><td>High Risk</td></tr> </table>			Low Risk	Moderate Risk	High Risk
Low Risk								
Moderate Risk								
High Risk								
Risks	Optimistic Scenario (RCP 4.5)			Business As Usual Scenario (RCP 8.5)				
	Baseline (2024)	Medium (2030)	Long (2050)	Baseline (2024)	Medium (2030)	Long (2050)		
Water	Moderate Risk	High Risk	High Risk	Moderate Risk	High Risk	High Risk		
Drought	Moderate Risk	High Risk	High Risk	Moderate Risk	High Risk	High Risk		
Flood	Moderate Risk	High Risk	High Risk	Moderate Risk	High Risk	High Risk		
Extreme Heat	Moderate Risk	High Risk	High Risk	Moderate Risk	High Risk	High Risk		
Sea Level Rise	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk		
Cyclones	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk		
Seismic	Moderate Risk	Moderate Risk	Moderate Risk	Moderate Risk	Moderate Risk	Moderate Risk		

The supplier based in Bharuch, Gujarat, India is expected to be predominantly exposed to water, drought, flood, and extreme heat risks under both scenarios from the medium to long – term.

Ashland Speciality Chemical, Maharashtra, India

Supplier Name: Ashland Specialty Chemical								
Location: Panvel, Raigad, Maharashtra, India								
			<table border="1"> <tr><td>Low Risk</td></tr> <tr><td>Moderate Risk</td></tr> <tr><td>High Risk</td></tr> </table>			Low Risk	Moderate Risk	High Risk
Low Risk								
Moderate Risk								
High Risk								
Risks	Optimistic Scenario (RCP 4.5)			Business As Usual Scenario (RCP 8.5)				
	Baseline (2024)	Medium (2030)	Long (2050)	Baseline (2024)	Medium (2030)	Long (2050)		
Water	Low Risk	Low Risk	Moderate Risk	Low Risk	Moderate Risk	Moderate Risk		
Drought	Moderate Risk	Moderate Risk	High Risk	Moderate Risk	High Risk	High Risk		
Flood	High Risk	High Risk	High Risk	High Risk	High Risk	High Risk		
Extreme Heat	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk		
Sea Level Rise	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Moderate Risk		
Cyclones	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk		
Seismic	Moderate Risk	Moderate Risk	Moderate Risk	Moderate Risk	Moderate Risk	Moderate Risk		

The supplier based in Panvel, Raigad, Maharashtra, India is expected to be predominantly exposed to flood, and drought risks under both scenarios from the baseline to long – term. Additionally, the business operations are also expected to be increasingly vulnerable to water risks under both scenarios, and sea – level rise under the business – as – usual scenario.

IOL Chemicals and Pharmaceuticals, Punjab, India

Supplier Name: IOL Chemicals and Pharmaceuticals		Risk Legend					
Location: Barnala, Punjab, India		<div style="display: flex; justify-content: space-between;"> <div style="width: 30px; height: 10px; background-color: #90EE90; border: 1px solid black;"></div> Low Risk <div style="width: 30px; height: 10px; background-color: #FFD700; border: 1px solid black;"></div> Moderate Risk <div style="width: 30px; height: 10px; background-color: #FF0000; border: 1px solid black;"></div> High Risk </div>					
Risks	Optimistic Scenario (RCP 4.5)			Business As Usual Scenario (RCP 8.5)			
	Baseline (2024)	Medium (2030)	Long (2050)	Baseline (2024)	Medium (2030)	Long (2050)	
Water	High Risk	High Risk	High Risk	High Risk	High Risk	High Risk	
Drought	High Risk	High Risk	High Risk	High Risk	High Risk	High Risk	
Flood	High Risk	High Risk	High Risk	High Risk	High Risk	High Risk	
Extreme Heat	Moderate Risk	Moderate Risk	Moderate Risk	Moderate Risk	Moderate Risk	Moderate Risk	
Sea Level Rise	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	
Cyclones	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	
Seismic	Moderate Risk	Moderate Risk	Moderate Risk	Moderate Risk	Moderate Risk	Moderate Risk	

The supplier based in Barnala, Punjab, India is expected to be predominantly exposed to water, drought, and flood risks under both scenarios from the baseline to long – term. Additionally, the business operations are also expected to be increasingly vulnerable to extreme heat risk under both scenarios.

Colorcon Asia Pvt Ltd, Goa, India

Supplier Name: Colorcon Asia Pvt Ltd		Risk Legend					
Location: Verna, Goa, India		<div style="display: flex; justify-content: space-between;"> <div style="width: 30px; height: 10px; background-color: #90EE90; border: 1px solid black;"></div> Low Risk <div style="width: 30px; height: 10px; background-color: #FFD700; border: 1px solid black;"></div> Moderate Risk <div style="width: 30px; height: 10px; background-color: #FF0000; border: 1px solid black;"></div> High Risk </div>					
Risks	Optimistic Scenario (RCP 4.5)			Business As Usual Scenario (RCP 8.5)			
	Baseline (2024)	Medium (2030)	Long (2050)	Baseline (2024)	Medium (2030)	Long (2050)	
Water	Low Risk	Low Risk	Moderate Risk	Low Risk	Moderate Risk	Moderate Risk	
Drought	Moderate Risk	Moderate Risk	High Risk	Moderate Risk	High Risk	High Risk	
Flood	High Risk	High Risk	High Risk	High Risk	High Risk	High Risk	
Extreme Heat	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	
Sea Level Rise	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	
Cyclones	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	
Seismic	Moderate Risk	Moderate Risk	Moderate Risk	Moderate Risk	Moderate Risk	Moderate Risk	

The supplier based in Verna, South Goa, Goa, India is expected to be predominantly exposed to flood, and drought risks under both scenarios from the baseline to long – term. Additionally, the business operations are also expected to be increasingly vulnerable to water risks under both scenarios.

Balaji Amines Ltd, Telangana, India

Supplier Name: Balaji Amines Limited						Low Risk
Location: Hyderabad, Telangana, India						Moderate Risk
						High Risk
Risks	Optimistic Scenario (RCP 4.5)			Business As Usual Scenario (RCP 8.5)		
	Baseline (2024)	Medium (2030)	Long (2050)	Baseline (2024)	Medium (2030)	Long (2050)
Water	High Risk	High Risk	High Risk	High Risk	High Risk	High Risk
Drought	Moderate Risk	High Risk	High Risk	Moderate Risk	High Risk	High Risk
Flood	Moderate Risk	High Risk	High Risk	Moderate Risk	High Risk	High Risk
Extreme Heat	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Moderate Risk
Cyclones	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk
Seismic	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk

The supplier based in Hyderabad, Telangana, India is expected to be predominantly exposed to water, drought, and flood risks under both scenarios from the baseline to long – term.

Ningxia Beilite Chemical, Ningxia, China

Supplier Name: Ningxia Beilite Chemical						Low Risk
Location: Yin Chuan Shi, Ningxia, China						Moderate Risk
						High Risk
Risks	Optimistic Scenario (RCP 4.5)			Business As Usual Scenario (RCP 8.5)		
	Baseline (2024)	Medium (2030)	Long (2050)	Baseline (2024)	Medium (2030)	Long (2050)
Water	High Risk	High Risk	High Risk	High Risk	High Risk	High Risk
Drought	High Risk	High Risk	High Risk	High Risk	High Risk	High Risk
Flood	Low Risk	Low Risk	Low Risk	Low Risk	Moderate Risk	Moderate Risk
Extreme Heat	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk
Sea Level Rise	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk
Cyclones	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk
Seismic	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk

The supplier based in Yin Chuan Shi, Ningxia, China is expected to be predominantly exposed to water and drought risk under both scenarios from the baseline to long – term. Additionally, the business operations are also expected to be increasingly vulnerable to flood risks under business – as – usual scenario in the medium to long – term.

Solvay Speciality Chemicals, Jiangsu, China

Supplier Name: Solvay Speciality Chemicals
Location: Zhenjiang, Jiangsu, China

Low Risk
Moderate Risk
High Risk

Risks	Optimistic Scenario (RCP 4.5)			Business As Usual Scenario (RCP 8.5)		
	Baseline (2024)	Medium (2030)	Long (2050)	Baseline (2024)	Medium (2030)	Long (2050)
Water						
Drought						
Flood						
Extreme Heat						
Sea Level Rise						
Cyclones						
Seismic						

The supplier based in Zhenjiang, Jiangsu, China is expected to be predominantly exposed to drought risk under both scenarios from the baseline to long – term. Additionally, the business operations are also expected to be increasingly vulnerable to floods and cyclones under both scenarios in the medium to long – term.

Ningxia Jaifeng Chemical Co Ltd, Ningxia, China

Supplier Name: Ningxia Jiafeng Chemical Co. Ltd.
Location: Shizulshan, Ningxia, China

Low Risk
Moderate Risk
High Risk

Risks	Optimistic Scenario (RCP 4.5)			Business As Usual Scenario (RCP 8.5)		
	Baseline (2024)	Medium (2030)	Long (2050)	Baseline (2024)	Medium (2030)	Long (2050)
Water						
Drought						
Flood						
Extreme Heat						
Sea Level Rise						
Cyclones						
Seismic						

The supplier based in Shizulshan, Ningxia, China is expected to be predominantly exposed to water and drought risks under both scenarios from the baseline to long – term. Additionally, the business operations are also expected to be increasingly vulnerable to flood risks under both scenarios in the medium to long – term.

Transition Risks

Transition Risks	TCFD Category	Description & Overview	Mitigation Plan
Carbon Pricing	Policy and Legal	<p>The financial risks associated with emissions across the business operations and supply chain, levied in the form of carbon taxes.</p> <p>Currently, we are exposed to carbon pricing policies across the different jurisdiction where it is in place (in the EU, and the UK) or is under consideration (in India, USA, etc.)</p>	<p>Commitment to achieve carbon neutrality by 2050.</p> <p>Commitment to reduce Scope 1, 2 and 3 emissions in accordance with SBTi.</p> <p>By reducing the CO2 emissions and energy consumption, we aim to mitigate this risk.</p> <p>Along with this, we plan to reduce our energy demand by adopting new and advanced manufacturing technologies and transitioning to clean energy solutions for our business operations.</p>
Changing consumer preferences	Market	<p>The risk is associated with not making sustainable products, and consumer purchasing behavior shifting towards more sustainable brands such as products with less plastic or more recyclable packaging. Hence, there is an increasing pressure to decarbonize products across their whole life cycle including Scope 3 emissions.</p> <p>As ~74% of Granules emissions are Scope 3, there is additional complexity in sustainable manufacturing as it relies on suppliers decarbonizing their operations. Also, the grid decarbonization in 2 countries – China / India will impact our majority of the Scope 3 emissions.</p>	<p>Procurement of sustainable packaging materials.</p> <p>Decarbonizing the supply chain.</p>

Risk Mitigation Plan and Initiatives

1. Climate Risk Assessment:

Facility Assessments: Conduct comprehensive climate risk assessments for all facilities to identify vulnerabilities to physical climate risks such as extreme weather events, flooding, and temperature changes.

Supplier Assessments: Evaluate climate risks for strategic suppliers to ensure the resilience of the supply chain.

2. Emission Reduction Initiatives:

Energy Efficiency: Implement energy efficiency measures across operations to reduce greenhouse gas emissions. This includes upgrading equipment, optimizing processes, and adopting energy-saving technologies.

Renewable Energy: Increase the use of renewable energy sources, such as solar and wind, to power operations. This includes commissioning new renewable energy projects and purchasing renewable energy certificates.

3. Water Management:

Water Conservation: Implement water-saving technologies and practices to reduce water consumption. This includes recycling and reusing water in operations and improving water use efficiency.

Water Risk Assessments: Conduct water risk assessments to identify and mitigate potential water-related risks, ensuring sustainable water use.

4. Waste Management:

Zero Waste to Landfill: Aim to achieve zero waste to landfill by increasing recycling and co-processing of waste. This involves improving waste segregation and finding innovative ways to reuse waste materials.

Hazardous Waste Management: Implement strict protocols for the safe handling, storage, and disposal of hazardous waste to minimize environmental impact.

5. Sustainable Packaging:

Green Packaging Strategy: Develop and implement a green packaging strategy to reduce the environmental impact of packaging materials. This includes using recyclable and biodegradable materials and reducing packaging waste.

6. Continuous Improvement and Monitoring:

Regular Audits: Conduct regular environmental audits to ensure compliance with sustainability goals and identify areas for improvement.

Performance Monitoring: Establish key performance indicators (KPIs) to monitor progress towards sustainability targets and report on performance regularly.

7. Stakeholder Engagement:

Employee Training: Provide training programs for employees to raise awareness about climate risks and the importance of sustainability initiatives.

Community Engagement: Engage with local communities to promote environmental stewardship and collaborate on sustainability projects.

Metrics and Targets

In alignment with the Task Force on Climate-related Financial Disclosures (TCFD) recommendations, Granules committed to transparently reporting our climate-related metrics and targets along with key performance indicators, progress towards our sustainability goals, and the specific targets we have set to mitigate climate risks and enhance our environmental stewardship. Our metrics cover a range of areas including greenhouse gas emissions, energy consumption, water usage, and waste management, reflecting our dedication to achieving net zero emissions by 2050 and fostering a sustainable future

Climate and Environment Targets

Long-term Targets:

- **Net Zero by 2050:** Committed to achieving net zero emissions by 2050
- **Renewable Energy:** Achieve 100 % sourcing renewable electricity by 2030
- **Water Positive:** Achieve water positivity by 2032
- **Waste Management:** Achieve zero waste to landfill by 2030.

Short - Mid term Targets:

- **Emissions :**
 - Reduce Scope 1 and Scope 2 absolute emissions by 42% by FY 30 from FY 23 baseline
 - Reduce Scope 3 absolute emission by 42% by FY 30 from FY 23 baseline
- **Energy :** Energy intensity reduction by 20% by FY 27
- **Water :** Water intensity reduction by 27% by FY 27
- **Waste :** Increase coprocessing of waste to 95% by FY 26.
- **ICP :** Develop an Internal Carbon Pricing (ICP) by FY 25.
- **Onsite Solar :** Commission 1MW rooftop solar plant at Gagillapur unit by FY 25.
- **Climate Risk Analysis:** Conduct climate risk analysis for all facilities and strategic suppliers by 2025.
- **Supplier Engagement :** Roll out supplier sustainability framework, identify strategic suppliers, and engage them to adopt and share climate targets by FY 25.

GRANULES INDIA LTD.

2nd Floor, 3rd Block, My Home
Hub, Madhapur, Hyderabad – 500
081, Telangana, India.

Tel: +91 40 69043500
mail@granulesindia.com