

Material Risk Assessment

As part of our ongoing commitment to sustainability and responsible sourcing, G-Star RAW has conducted a comprehensive material risk assessment to identify and address social and environmental risks associated with the raw materials used in our products.

In collaboration with industry experts and stakeholders, we have examined the social, environmental, and ethical challenges present throughout our supply chain. This assessment aims to increase transparency, mitigate risks, and drive positive change within our sourcing practices.

The following report outlines the key social and environmental risks associated with the raw materials used in our apparel manufacturing. By identifying these risks and their high-risk regions, we can take proactive steps to address them, promote sustainable practices, and ensure the well-being of workers and ecosystems throughout our supply chain.

1. Cotton:

- **Social Risks:**

- Child labor and forced labor in cotton farming, particularly in countries like India, Uzbekistan, and Pakistan.
- Poor working conditions for cotton farmworkers, including exposure to hazardous chemicals and lack of access to protective gear, prevalent in countries like India and Bangladesh.
- Gender inequality and discrimination, especially in regions with traditional gender roles, such as India and Pakistan.
- Exploitation of migrant workers in cotton farming, particularly in countries like India and Uzbekistan.

- **Environmental Risks:**

- High water consumption: Conventional cotton farming requires significant water usage, leading to water scarcity in cotton-growing regions, especially in countries like India, China, and the United States.
- Pesticide and chemical usage: Contamination of soil, water, and air due to the widespread use of pesticides and fertilizers in conventional cotton farming, common in countries like India, China, and the United States.
- Soil degradation and erosion due to monoculture farming practices, particularly in regions with intensive cotton cultivation, such as India, China, and Pakistan.

- Biodiversity loss: Conversion of natural habitats to cotton fields leads to habitat destruction and loss of biodiversity, especially in regions like the Amazon rainforest and the Indus Valley.

2. Polyester:

- **Social Risks:**

- Poor working conditions in polyester manufacturing facilities, especially in countries with lax labor regulations, such as China, India, and Bangladesh.
- Health hazards for workers due to exposure to toxic chemicals during polyester production, prevalent in countries like China, India, and Indonesia.
- Discrimination and harassment of women workers in polyester manufacturing, particularly in patriarchal societies like India and Bangladesh.
- Exploitative employment practices, including unpaid overtime and wage theft, common in polyester manufacturing hubs like China and India.

- **Environmental Risks:**

- High energy consumption: Polyester production is energy-intensive, contributing to greenhouse gas emissions and climate change, with major production centers in China, India, and the United States.
- Pollution: Discharge of toxic chemicals and dyes into water bodies during polyester production, leading to water pollution and ecosystem damage, common in countries like China, India, and Indonesia.
- Microplastic pollution: Shedding of microplastics during the washing of polyester garments contributes to marine pollution, threatening aquatic ecosystems and marine life worldwide.
- Carbon emissions: Polyester production contributes significantly to carbon emissions, exacerbating climate change and its associated environmental impacts.

3. Viscose/Rayon:

- **Social Risks:**

- Deforestation and habitat destruction: Viscose production is linked to deforestation, particularly in regions like Indonesia, Brazil, and China, leading to displacement of indigenous communities.
- Exploitative labor practices in wood pulp extraction and viscose production facilities, prevalent in countries like Indonesia, India, and China.

- Occupational health and safety hazards for workers, including exposure to toxic chemicals and respiratory illnesses, common in viscose manufacturing hubs like India and China.
- Low wages and lack of job security for workers in the viscose supply chain, especially in developing countries like Indonesia and India.
- **Environmental Risks:**
 - Deforestation: Unsustainable logging practices for wood pulp used in viscose production contribute to deforestation and loss of biodiversity, common in countries like Indonesia, Brazil, and China.
 - Chemical pollution: Discharge of toxic chemicals into waterways during viscose production, leading to water pollution and ecosystem degradation, common in countries like India, China, and Indonesia.
 - Air pollution: Release of hazardous air pollutants during viscose production, contributing to air quality degradation and respiratory illnesses, particularly in communities near manufacturing facilities.
 - Soil contamination: Disposal of viscose production waste leads to soil contamination with toxic chemicals, affecting agricultural land and ecosystems in countries like India and China.

4. Wool:

- **Social Risks:**
 - Animal welfare concerns: Cruelty to animals, including mulesing (a painful procedure to prevent flystrike), in some wool-producing regions like Australia, New Zealand, and China.
 - Exploitative labor practices in wool shearing and processing facilities, prevalent in countries like Australia, China, and India.
 - Gender-based violence and discrimination against women workers in the wool industry, particularly in male-dominated roles like shearing and processing.
 - Health and safety hazards for workers, including musculoskeletal injuries and exposure to hazardous chemicals, common in wool processing facilities.
- **Environmental Risks:**
 - Land degradation: Overgrazing of pastures and land degradation due to unsustainable wool production practices, common in countries like Australia, China, and New Zealand.

- **Water pollution:** Contamination of water bodies with wool processing chemicals, such as dyes and detergents, common in countries like China, Australia, and India.
- **Greenhouse gas emissions:** Methane emissions from sheep farming contribute to global warming, exacerbating climate change and its associated environmental impacts.
- **Soil erosion:** Overgrazing and unsustainable land management practices lead to soil erosion and loss of fertile topsoil in wool-producing regions.

5. **Silk:**

- **Social Risks:**

- **Exploitative labor practices** in silk production, particularly in regions with low labor standards, such as China, India, and Thailand.
- **Gender inequality and discrimination** against women workers in the silk industry, prevalent in countries like China, India, and Vietnam.
- **Child labor and forced labor** in silk farming and processing, especially in countries with weak child labor laws and enforcement, such as India and Bangladesh.
- **Occupational health and safety hazards** for workers, including exposure to toxic chemicals and injuries from machinery, common in silk processing facilities.

- **Environmental Risks:**

- **Deforestation:** Clearance of forests for mulberry cultivation, the primary food source for silkworms, common in countries like China, India, and Thailand.
- **Chemical pollution:** Use of pesticides and chemicals in silk production, leading to soil and water contamination, common in countries like China, India, and Vietnam.
- **Habitat destruction:** Conversion of natural habitats to silk farms leads to habitat loss and fragmentation, threatening biodiversity and ecosystems.
- **Water scarcity:** Intensive water usage in silk production depletes local water resources and contributes to water scarcity in silk-producing regions.

6. **Acrylic:**

- **Social Risks:**

- **Poor working conditions** in acrylic manufacturing facilities, especially in countries with lax labor regulations, such as China, India, and Bangladesh.

- Health hazards for workers due to exposure to toxic chemicals during acrylic production, prevalent in countries like China, India, and Indonesia.
- Discrimination and harassment of women workers in acrylic manufacturing, particularly in patriarchal societies like India and Bangladesh.
- Exploitative employment practices, including unpaid overtime and wage theft, common in acrylic manufacturing hubs like China and India.
- **Environmental Risks:**
 - High energy consumption: Acrylic production is energy-intensive, contributing to greenhouse gas emissions and climate change, with major production centers in China, India, and the United States.
 - Pollution: Discharge of toxic chemicals and dyes into water bodies during acrylic production, leading to water pollution and ecosystem damage, common in countries like China, India, and Indonesia.
 - Microplastic pollution: Shedding of microplastics during the washing of acrylic garments contributes to marine pollution, threatening aquatic ecosystems and marine life worldwide.
 - Carbon emissions: Acrylic production contributes significantly to carbon emissions, exacerbating climate change and its associated environmental impacts.

7. Elastane:

- **Social Risks:**
 - Poor working conditions in elastane manufacturing facilities, especially in countries with lax labor regulations, such as China, India, and Bangladesh.
 - Health hazards for workers due to exposure to toxic chemicals during elastane production, prevalent in countries like China, India, and Indonesia.
 - Discrimination and harassment of women workers in elastane manufacturing, particularly in patriarchal societies like India and Bangladesh.
 - Exploitative employment practices, including unpaid overtime and wage theft, common in elastane manufacturing hubs like China and India.
- **Environmental Risks:**
 - High energy consumption: Elastane production is energy-intensive, contributing to greenhouse gas emissions and climate change, with major production centers in China, India, and the United States.

- **Pollution:** Discharge of toxic chemicals and dyes into water bodies during elastane production, leading to water pollution and ecosystem damage, common in countries like China, India, and Indonesia.
- **Microplastic pollution:** Shedding of microplastics during the washing of elastane garments contributes to marine pollution, threatening aquatic ecosystems and marine life worldwide.
- **Carbon emissions:** Elastane production contributes significantly to carbon emissions, exacerbating climate change and its associated environmental impacts.

8. **Flex:**

- **Social Risks:**

- Poor working conditions in flex manufacturing facilities, especially in countries with lax labor regulations, such as China, India, and Bangladesh.
- Health hazards for workers due to exposure to toxic chemicals during flex production, prevalent in countries like China, India, and Indonesia.
- Discrimination and harassment of women workers in flex manufacturing, particularly in patriarchal societies like India and Bangladesh.
- Exploitative employment practices, including unpaid overtime and wage theft, common in flex manufacturing hubs like China and India.

- **Environmental Risks:**

- **High energy consumption:** Flex production is energy-intensive, contributing to greenhouse gas emissions and climate change, with major production centers in China, India, and the United States.
- **Pollution:** Discharge of toxic chemicals and dyes into water bodies during flex production, leading to water pollution and ecosystem damage, common in countries like China, India, and Indonesia.
- **Microplastic pollution:** Shedding of microplastics during the washing of flex garments contributes to marine pollution, threatening aquatic ecosystems and marine life worldwide.
- **Carbon emissions:** Flex production contributes significantly to carbon emissions, exacerbating climate change and its associated environmental impacts.

9. **Hemp:**

- **Social Risks:**

- Exploitative labor practices in hemp farming and processing facilities, prevalent in countries like China, India, and Bangladesh.
- Health hazards for workers due to exposure to toxic chemicals during hemp cultivation and processing, prevalent in countries like China, India, and Indonesia.
- Discrimination and harassment of women workers in hemp farming and processing, particularly in patriarchal societies like India and Bangladesh.
- Exploitative employment practices, including unpaid overtime and wage theft, common in hemp farming and processing hubs like China and India.
- **Environmental Risks:**
 - Deforestation and habitat destruction: Unsustainable hemp cultivation practices contribute to deforestation and loss of biodiversity, common in countries like China, India, and Thailand.
 - Chemical pollution: Use of pesticides and chemicals in hemp cultivation, leading to soil and water contamination, common in countries like China, India, and Indonesia.
 - Soil erosion: Poor soil management practices in hemp farming lead to soil erosion and loss of fertile topsoil, particularly in regions with intensive cultivation like China and India.
 - Water scarcity: Intensive water usage in hemp cultivation depletes local water resources and contributes to water scarcity in hemp-producing regions.

10. Polyamide:

- **Social Risks:**
 - Poor working conditions in polyamide manufacturing facilities, especially in countries with lax labor regulations, such as China, India, and Bangladesh.
 - Health hazards for workers due to exposure to toxic chemicals during polyamide production, prevalent in countries like China, India, and Indonesia.
 - Discrimination and harassment of women workers in polyamide manufacturing, particularly in patriarchal societies like India and Bangladesh.
 - Exploitative employment practices, including unpaid overtime and wage theft, common in polyamide manufacturing hubs like China and India.
- **Environmental Risks:**

- High energy consumption: Polyamide production is energy-intensive, contributing to greenhouse gas emissions and climate change, with major production centers in China, India, and the United States.
- Pollution: Discharge of toxic chemicals and dyes into water bodies during polyamide production, leading to water pollution and ecosystem damage, common in countries like China, India, and Indonesia.
- Microplastic pollution: Shedding of microplastics during the washing of polyamide garments contributes to marine pollution, threatening aquatic ecosystems and marine life worldwide.
- Carbon emissions: Polyamide production contributes significantly to carbon emissions, exacerbating climate change and its associated environmental impacts.

11. Manmade Cellulosic Fibers (e.g., Modal, Lyocell, Viscose):

- **Social Risks:**

- Deforestation and habitat destruction: Manmade cellulosic fiber production is linked to deforestation, particularly in regions like Indonesia, Brazil, and China, leading to displacement of indigenous communities.
- Exploitative labor practices in wood pulp extraction and fiber production facilities, prevalent in countries like Indonesia, India, and China.
- Occupational health and safety hazards for workers, including exposure to toxic chemicals and respiratory illnesses, common in fiber manufacturing hubs like India and China.
- Low wages and lack of job security for workers in the fiber supply chain, especially in developing countries like Indonesia and India.

- **Environmental Risks:**

- Deforestation: Unsustainable logging practices for wood pulp used in fiber production contribute to deforestation and loss of biodiversity, common in countries like Indonesia, Brazil, and China.
- Chemical pollution: Discharge of toxic chemicals into waterways during fiber production, leading to water pollution and ecosystem degradation, common in countries like India, China, and Indonesia.
- Air pollution: Release of hazardous air pollutants during fiber production, contributing to air quality degradation and respiratory illnesses, particularly in communities near manufacturing facilities.
- Soil contamination: Disposal of fiber production waste leads to soil contamination with toxic chemicals, affecting agricultural land and ecosystems in countries like India and China.

12. Leather:

- **Social Risks:**

- Exploitative labor practices in leather tanneries and processing facilities, prevalent in countries like China, India, and Bangladesh.
- Health hazards for workers due to exposure to toxic chemicals during leather processing, prevalent in countries like China, India, and Indonesia.
- Discrimination and harassment of women workers in leather processing, particularly in patriarchal societies like India and Bangladesh.
- Exploitative employment practices, including unpaid overtime and wage theft, common in leather processing hubs like China and India.

- **Environmental Risks:**

- Deforestation and habitat destruction: Leather production is linked to deforestation, particularly in regions like the Amazon rainforest and Southeast Asia, leading to loss of biodiversity and habitat destruction.
- Chemical pollution: Discharge of toxic chemicals into water bodies during leather processing, leading to water pollution and ecosystem degradation, common in countries like India, China, and Bangladesh.
- Soil contamination: Improper disposal of leather processing waste leads to soil contamination with toxic chemicals, affecting agricultural land and ecosystems in countries like India and China.
- Water scarcity: Intensive water usage in leather processing depletes local water resources and contributes to water scarcity in leather-producing regions.

Summary table of the risk:

Raw Material	Social Risks	Environmental Risks	High-Risk Countries (Social)	High-Risk Countries (Environmental)
Cotton	- Child and forced labor - Poor working conditions - Gender inequality - Migrant labor	- High water consumption - Pesticide and chemical usage - Soil degradation - Biodiversity loss	India, Uzbekistan, Pakistan	India, China, United States
Polyester	- Poor working conditions - Health hazards for workers - Gender inequality -	- High energy consumption - Pollution - Microplastic pollution -	China, India, United States	China, India, Indonesia

Raw Material	Social Risks	Environmental Risks	High-Risk Countries (Social)	High-Risk Countries (Environmental)
	Exploitative employment practices	Carbon emissions		
Viscose/Rayon	- Deforestation and habitat destruction - Exploitative labor practices - Health hazards for workers - Low wages	- Deforestation - Chemical pollution - Air pollution - Soil contamination	Indonesia, Brazil, China	India, China, Indonesia
Wool	- Animal welfare concerns - Exploitative labor practices - Gender-based violence - Health and safety hazards	- Land degradation - Water pollution - Greenhouse gas emissions - Soil erosion	Australia, China, New Zealand	China, Australia, New Zealand
Silk	- Exploitative labor practices - Gender inequality - Child and forced labor - Health and safety hazards	- Deforestation - Chemical pollution - Habitat destruction - Water scarcity	China, India, Thailand	China, India, Brazil
Acrylic	- Poor working conditions - Health hazards for workers - Gender inequality - Exploitative employment practices	- High energy consumption - Pollution - Microplastic pollution - Carbon emissions	China, India, United States	China, India, United States
Elastane	- Poor working conditions - Health hazards for workers - Gender inequality - Exploitative employment practices	- High energy consumption - Pollution - Microplastic pollution - Carbon emissions	China, India, United States	China, India, United States
Flex	- Poor working conditions - Health hazards for workers - Gender inequality - Exploitative employment practices	- High energy consumption - Pollution - Microplastic pollution - Carbon emissions	China, India, United States	China, India, United States
Hemp	- Exploitative labor practices - Health hazards for workers - Gender	- Deforestation and habitat destruction - Chemical pollution - Soil	China, India, Thailand	China, India, Indonesia

Raw Material	Social Risks	Environmental Risks	High-Risk Countries (Social)	High-Risk Countries (Environmental)
	inequality - Exploitative employment practices	erosion - Water scarcity		
Polyamide	- Poor working conditions - Health hazards for workers - Gender inequality - Exploitative employment practices	- High energy consumption - Pollution - Microplastic pollution - Carbon emissions	China, India, United States	China, India, United States
Manmade Cellulosic Fibers	- Deforestation and habitat destruction - Exploitative labor practices - Occupational health and safety hazards - Low wages	- Deforestation - Chemical pollution - Air pollution - Soil contamination	Indonesia, Brazil, China	India, China, Indonesia
Leather	- Exploitative labor practices - Health hazards for workers - Gender inequality - Exploitative employment practices	- Deforestation and habitat destruction - Chemical pollution - Soil contamination - Water scarcity	China, India, Bangladesh	China, India, Bangladesh

By identifying and addressing these social and environmental risks, we can work towards more sustainable and ethical sourcing of raw materials for their products.

Sources:

1. Cotton:

- Social Risks:
 - U.S. Department of Labor - List of Goods Produced by Child Labor or Forced Labor
 - Human Rights Watch - Child Labor in Uzbekistan's Cotton Sector
- Environmental Risks:
 - World Wildlife Fund (WWF) - Cotton and Pesticides
 - Pesticide Action Network UK - The True Costs of Cotton: Pesticides
- High-Risk Countries:
 - Global Slavery Index - Uzbekistan
 - Environmental Justice Foundation - Cotton Production and Modern Slavery

2. Polyester:

- Social and Environmental Risks:
 - Fashion Revolution - Polyester: The Facts
 - Textile Exchange - Polyester Sustainability Insights
- High-Risk Countries:
 - [U.S. Environmental Protection Agency - Polyester Production](#)

3. Viscose/Rayon:

- Social and Environmental Risks:
 - Changing Markets Foundation - Dirty Fashion: Viscose Production
 - Canopy - Viscose Sourcing Hotspots
- High-Risk Countries:
 - Environmental Justice Foundation - Viscose Production and Deforestation

4. Wool:

- Social and Environmental Risks:
 - World Animal Protection - Wool and Animal Welfare

- Environmental Working Group - Wool Production and Environmental Impact
- High-Risk Countries:
 - PETA - Wool Exposed

5. **Silk:**

- Social and Environmental Risks:
 - World Animal Protection - Silk Production and Animal Welfare
 - Textile Exchange - Silk Sustainability Insights
- High-Risk Countries:
 - Fibre2Fashion - Global Silk Production

6. **Acrylic, Elastane, Flex:**

- Social and Environmental Risks:
 - Ecotextile News - Synthetic Fibres and Their Impact
 - [The Guardian - The Environmental Impact of Synthetic Fibres](#)
- High-Risk Countries:
 - United Nations Industrial Development Organization (UNIDO) - Global Chemicals Outlook

7. **Hemp:**

- Social and Environmental Risks:
 - Fair World Project - Hemp and Social Justice
 - Hemp Today - Environmental Benefits of Hemp
- High-Risk Countries:
 - European Industrial Hemp Association (EIHA) - Hemp Cultivation and Production

8. **Polyamide:**

- Social and Environmental Risks:
 - [European Chemicals Agency \(ECHA\) - Risk Management of Polyamide Production](#)
 - Polyamide Sustainability - Challenges and Solutions
- High-Risk Countries:

- Business and Human Rights Resource Centre - Polyamide Production and Human Rights

9. Manmade Cellulosic Fibers:

- Social and Environmental Risks:
 - Canopy - Manmade Cellulosic Fibers Hot Button Report
 - Changing Markets Foundation - Dirty Fashion: Viscose Production
- High-Risk Countries:
 - Rainforest Action Network - Viscose Production and Deforestation

10. Leather:

- Social and Environmental Risks:
 - PETA - The Leather Industry's Environmental Impact
 - Environmental Justice Foundation - The Dirty Leather Industry