

VBIAF SECTORAL GUIDE: MANUFACTURING

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DEFINITIONS

Term/s Used	Definition
Circular economy (CE)	The circular economy is an economic system in which materials are designed to be used, not used up. From the outset, products and the systems they sit within should be designed to ensure no materials are lost, no toxins are leaked, and the maximum use is achieved from every process, material, and component.
Corporate Value Intent (CVI)	The FI's VBI commitment, which forms the basis for the formulation of all policies and systems from the front office to the back office, including customer service, marketing, product development, risk management, treasury, compliance, finance, human resource and information technology.
Double-Materiality	The double materiality approach identifies a company's impact on the environment and society as well as the environment and society's impact on the company. This is achieved through making reference to a company's development, performance and position (thus indicating financial materiality), and reference to the impact of the company's activities (which indicates environmental and social materiality), while noting that these two risk perspectives overlap and are increasingly likely to do so in the future ¹ .
(Environmental Impact Assessment) EIA	EIA is a study to identify, predict, evaluate and communicate information about the impacts of a proposed project on the environment including the surrounding community, and to detail out the mitigating measures prior to project approval and implementation, and is a statutory requirement under certain legislations. The assessment covers the whole life cycle of project i.e., project planning, project development, operations up to decommissioning/abandonment phases.
Environmentally Sensitive Areas (ESAs)	<p>ESAs are identified and recognised to ensure sustainable management of resources, as well as to maintain the sustainability of our natural surroundings. Malaysia's National Physical Plan (NPP) clearly defines ESAs according to our environmental, physical, cultural and climate contexts. The NPP strictly advises that ESAs remain untouched and should be conserved or sustainably managed depending on the type, characteristic and level of sensitivity and importance. ESAs are ranked in three categories.</p> <p>RANK 1 ESAs: No development, agriculture or logging should be permitted for an altitude above 1,000m except for low-impact nature tourism activities, and for research and education purposes. Areas ranked in this category include the existing and proposed protected areas, as well as important habitats such as turtle landing sites, salt licks, important plant areas, limestone outcrops and natural wetlands of high conservation value.</p> <p>RANK 2 ESAs: These include other forests and wetlands outside protected area and areas with an altitude of between 300m and 1,000m. Sustainable logging and low-impact tourism are allowed, but no physical development and agriculture activities are permitted.</p>

¹ Guidelines on Reporting Climate-Related Information, European Commission, EU, 2019

	<p>RANK 3 ESAs: These include all marine parks, catchment zones for water intake and groundwater recharge, as well as areas with critical and significant risk of erosion, and areas with an altitude of between 150m and 300m. Minimal and strictly controlled development may be allowed in these areas depending on the type and intensity of the projected impact and constraints.</p>
Extended Producer Responsibility (EPR)	<p>The concept of EPR was first devised for Germany’s packaging industry in the late 1980s. It is a policy tool and an environmentally-focused approach based on the ‘polluter-pays’ concept with a set of guiding principles, producers introduce packaging or packaged goods into a country’s market remains responsible for it until the end of the packaging life cycle, including the cycle after consumption. Besides packaging, EPR systems often cover electronic devices and batteries, but principally, the system could be applied to any product type². A 2013 study conducted by the OECD stated that over 400 different EPR systems were already in operation³.</p>
Green Procurement	<p>Green procurement refers to the procurement activities of products, services and works considering of environmental criteria and standard that conserve the natural environment and resources, which minimizes and reduces the negative impact of human activities.</p>
High Carbon Stock (HCS) ⁴	<p>High Carbon Stock forest are forests that have been identified using the High Carbon Stock Approach (HCSA) Toolkit. High Carbon Stock approach is a methodology that distinguishes forest areas for protection from degraded lands with low-carbon and biodiversity values that may be developed. The amount of carbon and biodiversity stored within an area of land varies according to the type of vegetative cover. The HCS Approach stratifies the vegetation in an area of land into six different classes using analyses of satellite data and ground survey measurements. These six classes are: High Density Forest, Medium Density Forest, Low Density Forest, Young Regenerating Forest, Scrub, and Cleared/ Open Land.</p>
High Conservation Value (HCV)	<p>According to High Conservation Value Resource Network (HCVN), HCV is a biological, ecological, social or cultural value of outstanding significance or critical importance. HCVs are classified into six categories: HCV 1: Species diversity; HCV 2: Landscape-level ecosystems and mosaics; HCV 3: Ecosystems and habitats; HCV 4: Ecosystem services; HCV 5: Community needs; and HCV 6: Cultural values.</p>
Impact-based Risk Assessment	<p>A comprehensive approach to identify and categorise impacts, both positive and negative to the value of the FI’s financing and/or investment assets, also enabling them to determine the most appropriate risk management tools.</p>
Impact-based Risk Management	<p>Inclusion of an impact-based dimension to the existing credit risk management practices (base approach) towards managing risks. under the VBI strategy e.g., sustainability-related risks. The impact-based approach considers the implication. both positive and negative, to the</p>

² EPR Toolbox, Prevent Waste Alliance, 2020

³ What have we learned about extended producer responsibility in the past decade? A survey of the recent EPR economic literature, Paris OECD, 2013

⁴ HCV Resource Network and HCS Approach, 2020

	financing and investment activities funded by the FI on the stakeholders based on the principles and strategies established in accordance with its CVI and the broader goal of a sustainable and resilient future.
Nature-Positive	Halting and reversing nature loss (The global goal for nature stipulates a target for a nature-positive by 2030).
Net Zero Emissions	Net zero emissions are achieved when anthropogenic emissions of greenhouse gases to the atmosphere are balanced by anthropogenic removals over a specified period. Where multiple greenhouse gases are involved, the quantification of net zero emissions depends on the climate metric chosen to compare emissions of different gases, such as global warming potential, global temperature change potential, and others, as well as the chosen time horizon (most commonly net-zero by 2050 latest) ⁵ .
Life Cycle Assessment (LCA)	An evaluation of various stages of business and its supply chain – from sourcing raw materials to manufacturing or production to marketing and post-purchase consumer behaviour.
On-boarding	The onboarding process in the context of both existing and new customers includes both evaluation of FI's customer' orientation to sustainability or ESG aspects, which is undertaken through due diligence, in keeping with regulatory, mandated and voluntary principles, standards and criteria.
Plastic Manufacturers	These include chemical companies which produce plastic resins and material, plastic convertors that transform plastic material into functional forms such as packaging for consumer products.
Plastic Users	Companies which use plastics in their products and packaging such as food and beverage industry, which also includes service packaging, i.e., Primary: The packaging that most closely touches or holds the product; Secondary: The packaging protects the primary packaging and provides branding opportunities; Tertiary: The packaging serves as a convenient way to move inventory quickly with easy handling by keeping multiple products bundled together; and Quaternary: The packaging or often known as Transportation/ E-Commerce packaging that most often used by warehouses to ship secondary or tertiary packaging to properly protect shipments during their time in transit.
Plastic Waste Managers	Companies involved in collecting, sorting, separating and processing of waste materials including plastics for materials recovery or disposals.
Policy Statement/s	FIs internal financing/investment policy statement/s on the sector, guiding their risk appetite as well as their risk management processes.
Post-consumer Recycled Content	Proportion, by mass, of post-consumer recycled material in a product or packaging. Material generated by households or by commercial, industrial and institutional facilities in their role as end users of the product which can no longer be used for its intended purpose. This

⁵ IPCC, 2018: Annex I: Glossary [Matthews, J.B.R. (ed.)]. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)]. In Press

	includes returns of material from the distribution chain. (ISO 14021:2016 modified, Environmental labels and declarations)
Problematic and unnecessary packaging	Single-use plastic items where consumption could be avoided through elimination, reuse or replacement and items that, post-consumption, commonly do not enter recycling and composting systems, or where they do, are not recycled due to their format, composition or size ⁶ .
Recyclability	Recyclability is the individual, gradual suitability of a packaging or a product to factually substitute material-identical virgin material in the post-use phase; “factually” hereby means that collection and processing structures in industrial scale are available locally ⁷ .
Recyclable packaging	A packaging or packaging component is recyclable if its successful post-consumer collection, sorting, and recycling is proven to work in practice and at scale. ‘In practice and at scale’ means that there is an existing (collection, sorting and recycling) system in place that actually recycles the packaging (it is not just a theoretical possibility) and that covers significant and relevant geographical areas as measured by population size ⁸ .
Remedies & Exit Procedures	Mechanisms and options available for FIs to take exceptions to policies and procedures, corrective actions, resolution tactics, and pre-emptive strategies to safeguard interests, cut financial losses, and remain resilient.
Reuse packaging	Operation by which packaging is refilled or used for the same purpose for which it was conceived, with or without the support of auxiliary products present on the market, enabling the packaging to be refilled. (ISO 18603:2013, Packaging and the environment – Reuse)
Reusable packaging	Packaging which has been designed to accomplish or proves its ability to accomplish a minimum number of trips or rotations in a system for reuse. (ISO 18603:2013, Packaging and the environment – Reuse)
Value-Based Intermediation (VBI)	An intermediation function that aims to deliver the intended outcomes of Shariah (Maqasid al-Shariah) through practices, conduct and offerings that generate positive and sustainable impact to the economy, community and environment, consistent with the shareholders’ sustainable returns and long-term interests.

⁶ Eliminating Problem Plastics, The UK Plastics Pact, WRAP, 2021

⁷ Verification and Examination of Recyclability Requirements and Assessment Catalogue, Institute cyclos-HTP, 2021

⁸ New Plastics Economy Global Commitment, 2020

ACRONYMS AND ABBREVIATIONS

BNM	Bank Negara Malaysia
CB	Certification Body
CITES	Convention on International Trade in Endangered Species
EC	Energy Commission
EIA	Environmental Impact Assessment
EIC	Energy Industry Council Malaysia
ESG	Environmental, Social and Governance
ESIA	Environmental & Social Impact Assessment
FIs	Financial institutions
FPIC	Free, Prior and Informed Consent
GHG	Greenhouse Gas
HBV	High Biodiversity Value
HCS	High Carbon Stock
HCV	High Conservation Value
IPCC	Intergovernmental Panel on Climate Change
ISCC	International Sustainability and Carbon Certification
IUCN	International Union for Conservation of Nature
JAS	Jabatan Alam Sekitar (<i>Department of Environment</i>)
JKKP	Jabatan Keselamatan dan Kesihatan Pekerjaan (<i>Department of Occupational Safety and Health</i>)
KBA	Key Biodiversity Area
KPDNHEP	Kementerian Perdagangan Dalam Negeri dan Hal Ehwal Pengguna (<i>Ministry of Domestic Trade and Consumer Affairs</i>)
MITI	Ministry of International Trade and Industry
MISC	Malaysian International Shipping Corporation
MS	Malaysian Standard
NC3BUR2	Malaysia 3 rd National Communication and 2 nd Biennial Update Report to UNFCCC
NGO	Non-governmental organisation
OSH	Occupational Safety and Health
PD	Probability of default
PERKESO	Pertubuhan Keselamatan Sosial (Social Security Organisation/SOCSO, Malaysia)
PPE	Personal protective equipment
SCC	Supply Chain Certification
SEIA	Social and Environmental Impact Assessment
SPOTT	Sustainability Policy Transparency Toolkit
TCFD	Task Force on Climate-related Financial Disclosures
UNDRIP	United Nations Declaration on the Rights of Indigenous Peoples
UNEP FI	United Nations Environment Programme Finance Initiative
UNFCCC	United Nations Framework Convention on Climate Change
UNPFII	United Nations Permanent Forum on Indigenous Issues
VBI	Value-based intermediation
VBIAF	Value-based intermediation Financing and Investment Impact Assessment Framework – Guidance Document
WHO	World Health Organisation

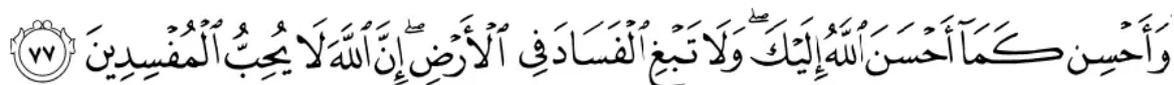
DISCLAIMERS

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A. FOREWORD: FROM THE CHAIRMAN



***Wa ahsin kamaaa ahsana Allaahu ilaika wala tabghi alfasada fee alardi
inna Allaha la yuhibbu almufsideena***

*And do good as Allah has done good to you. And desire not corruption in the land.
Indeed, Allah does not like corrupters. (Al-Qasas:77)*

Businesses can be a powerful force for good. With their collective networks and influence and through responsible practices and behaviour they can contribute to greater good of people and the planet. The biggest hurdle is to not look for a ‘reason’ to do good, but make doing ‘good’ a reason for being. The good we want to see in the world is the good we should demonstrate while pursuing business motives. The good of business or the business of good – both are really the foundation that will help shape a socially-just and an environmentally-sustainable world.

In 2020, a joint study conducted by KPMG and The Manufacturing Institute in the US entitled ‘Cost of Manufacturing Operations around the Globe⁹’, Malaysia ranks 4th among 17 economies in an assessment comparing the economy’s competitiveness as a manufacturing hub; ahead of countries in Asia such as China, Japan, Vietnam and India.

However, in the last two years, the industry has faced uncertainties and disruptions due to the unprecedented COVID-19 pandemic. Nonetheless, Malaysia continues to be a competitive investment destination. As at December 2020, MIDA has identified 240 high-profile foreign investment projects, including Fortune 500 companies in the manufacturing and services sectors, with a combined potential investment value of RM81.9 billion.

The Government, through MIDA, continues to be at the forefront to entice more high-value investments in the areas of technology and innovation to position Malaysia as an alternative supply chain hub in Asia. The big idea is to derive value by tapping on Malaysia’s well-established local supporting industry network and talented workforce to undertake high-tech products manufacturing and high value-added services to serve local and regional markets.

In doing so, businesses recognise that various trading / investor policies and regulations are increasingly focussing on sustainability or Environmental, Social, and Governance (ESG) impacts of the manufacturing sector. The emphasis is on achieving a greener and socially-just economy by adhering to various environmental and social criteria into business strategies, processes, and decisions.

⁹ Cost of Manufacturing Operations Around the World, Manufacturing Institute, KPMG, 2020

This Manufacturing Sectoral Guide is our early attempt and a living document to encourage FIs to apply the 'Do Good' principle to the sector, and steer their customers to support accelerated climate action and governance; strategic investments in innovation and carbon technologies; increased portfolio shares of responsible businesses; and improved social and community support and respect for human rights. The guidance equips FIs with proven and effective methodologies and prescribed practices for promoting sustainable / responsible business practices in the Manufacturing sector.

The guidance will inform FIs to apply sustainability screening and make responsible investment/financing/lending decisions, while creating a new band of ESG-compliant Manufacturing players. This document can also prove to be an insightful reference for customers, partners and other stakeholders of FIs in the Manufacturing supply chain, who also play a critical role in Malaysia's transition to low-carbon economy.

For FIs, the operationalisation of this Sectoral Guide will mean managing its ESG risk exposures, maintaining credit quality and accelerating its sustainability performance. On the other hand, the clear beneficiaries in the process, the Manufacturing players will benefit from enhanced recovery, improved cost efficiencies, and mitigation of technical and operational challenges towards reducing impacts, which could fetch them new standards, new incentives and new opportunities for growth. By mainstreaming this sectoral guidance, FIs will also be able to encourage Manufacturing players to funnel new investments in frontier and clean technologies including RE powered refrigeration systems etc.

On behalf of the VBI Community of Practitioners (CoP), regulator, technical experts, and individual contributors, I welcome all feedback for us to continue improving this guidance by integrating new emerging principles and global best practices. Please send your comments and suggestions to AIBIM (Secretariat) via staff@aibim.com.

Syamsul Azuan Ahmad Fauzi
Chief Executive Officer
Public Islamic Bank Berhad

B. INTRODUCTION

AIMS & OBJECTIVES

1. This Sectoral Guide should be read in conjunction with Bank Negara Malaysia's Value-based Intermediation Financing and Investment Impact Assessment Framework (VBIAF), which outlines the key principles, prescribed governance, and impact-based risk management approach.
2. VBI is an intermediary that functions to deliver the intended outcomes of Shariah (Maqasid al-Shariah). The application of Shariah principle of attainment of benefit, prevention of harm, doing good and integration of Shariah are key to this Sectoral Guide, whereby the FIs should define their respective approaches to integrate Shariah into their business strategies.
3. The main objective of the Sectoral Guide is to provide comprehensive or more granular guidance for implementing impact-based assessments for the sector. It also provides relevant sustainability metrics or indicators that can be considered when taking a holistic approach to the classification of economic activities.
4. This Sectoral Guide is a living document that may be periodically edited and updated, when necessary, in response to changes in relevant government policies, laws and regulations, industry practices and other sector-specific developments.

APPROACH

5. The guidance provided is developed in reference to applicable policy documents issued by Bank Negara Malaysia, Malaysian laws and regulation, standards and guidance issued by international/multi-stakeholder organisations and initiatives and publicly available information on best practices adopted by relevant institutions and practitioners.
6. The sector in focus has been selected for its significant contribution to the Malaysian economy, susceptibility to environment degradation and social issues, and potential significant exposure to transition risk.
7. The Sectoral Guide recommends an inclusive approach to adoption and implementation, where it is critical to orientate FI's stakeholders including customers and investors to create a common understanding towards meaningful outcomes.

APPLICABILITY

8. This guidance is intended for financial institutions (FIs). Counterparties of the FIs (e.g., customers, investors) may refer to this guidance to obtain a general perspective on areas / criteria considered in financing and investment assessments. However, final decision making is subject to the policies and procedures of the respective FIs.
9. While the guidance provides basic framework to help the industry build capability, FI-level calibration may be necessary to drive decisions that are aligned to their respective vision, mission, strategies, risk and growth appetites.

10. Efforts have been made to consult diverse group of stakeholders and technical experts in documenting this Sectoral Guide, however, it is not recommended to take the prescriptions as 'standard' solutions or practices. When operationalising this guidance, FI's should take into account the double materiality and its complexity, especially when it comes to quantifying the impacts, e.g., measuring the "costs" of negative impacts such as excessive GHG emissions etc.
11. The guidelines are for voluntary adoption and implementation. The prescribed best practices, frameworks and solutions may not be applicable or material universally. The applicability should be determined based on individual appetite; maturity and preparedness to integrate sustainability principles into business models; ability to build own capacity or nurture value chain partners with appropriate skills and knowledge; as well as the long-term aspirations to align and support organisational, national and international agenda of sustainable development.
12. This Sectoral Guide might be updated periodically i.e., every 2-3 years as appropriate to reflect the evolving nature and maturity of risk management practices. The examples of ESG risk management practices featured in this document are meant to be illustrative, and are neither prescriptive nor exhaustive.

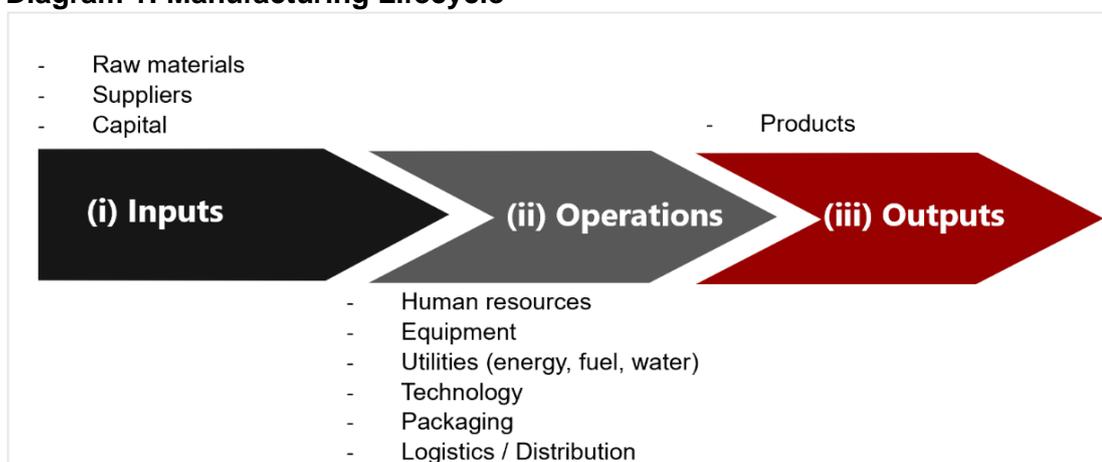
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C. SECTOR IN FOCUS: MANUFACTURING

DEFINITION & SCOPE

13. The Industrial Coordination Act (ICA) 1975 defines “manufacturing activity” as the making, altering, blending, ornamenting, finishing or otherwise treating or adapting any article or substance with a view to its use, sale, transport, delivery or disposal; and includes the assembly of parts and ship repairing but shall not include any activity normally associated with retail or wholesale trade.
14. However, there are activities that are exempted from ICA as below:
 - a. Milling of oil palm fresh fruits into crude palm oil;
 - b. The production and processing of raw natural rubber of all types including latex, skim, sheets, scrap, technically-specified rubbers, non-standard and modified rubber or any other unvulcanised form of natural rubber prepared by any patented or technically specified procedure; and
 - c. Milling of paddy into rice.
15. Manufacturing lifecycle involves converting inputs into outputs as below and further classification of manufacturing process can be by production scale, nature of the product, role of the processes, and the level of automation.

Diagram 1: Manufacturing Lifecycle



- a. The **Inputs** include procurement of raw materials necessary equipment and facilities for the manufacturing operations/production.
- b. The **Operations** relate to actual operations and production of the raw materials into the finished product.
- c. The **Output** is the finished product for sale and distribution as well as end-of-life management.

16. According to the Malaysia Standard Industrial Classification (MSIC)¹⁰, there are 24 divisions and 259 items covered under the manufacturing sector, which as a general rule, involves the transformation of materials into new products, i.e., their output is a new product.
17. In this Sectoral Guide, while we cover the manufacturing value chain in general with holistic guidance on the risk impact and assessment, relevant illustrations and best practices have been included specifically on a) Electrical & Electronics (E&E); b) Plastics; and c) Iron & Steel.

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¹⁰ The Malaysian Standard Industrial Classification Version 1.0 (MSIC) 2008

ECONOMIC CONTEXT

18. Malaysia's manufacturing sector is the second biggest economic sector. It contributed about 23.8% of the GDP in Q1 2021 of RM343.1 billion¹¹ and employs 2.24 million of workers as at May 2021¹². Malaysia has benefitted from FDI since 1970s, where it serves as a manufacturing base for multinationals investing in Southeast Asia. Having benefitted from the technology spill-overs, acquiring advanced management practices and deepening of supply chains including in high technology industries such as the electrical and electronics, automotive and chemical & chemical products industries, the country is now moving into the advanced manufacturing phase.
19. In short, the manufacturing sector has the most significant multiplier effect on the nation's activities and growth; it will continue to be the mainstay of the economy. This includes forward and backward linkages, the development of cluster industries, the transfer of new technologies, and skills development etc.
20. Malaysia recorded a total of RM167.4 billion in approved investments through 4,756 projects in the manufacturing, services and primary sectors in 2020. These investments are expected to create 114,700 new jobs in various sectors of the economy¹³. Domestic direct investments (DDI) accounted for 61.6 % (RM103.2 billion) of the total approved investments and FDI made up the remaining RM64.2 billion (38.4%). The manufacturing sector led the way for total investments approved, recording RM91.3 billion, services sector RM70.0 billion, and primary sector RM6.1 billion.¹⁴
21. In line with Malaysia's aspiration with its Industry4WRD¹⁵, the national policy on Industry 4.0, capital intensive projects which require advanced technologies and skilled workforce will continue to dominate the manufacturing landscape. For instance: there was an increase of capital investment per employee (CIPE) ratio to RM1,138,055 in 2020 from RM1,052,497 in 2019. Similarly, a total of 101 projects were approved with investments of RM100 million and above¹⁶.
22. The top-performing industries in 2020 were the electrical and electronics (RM15.6 billion), petroleum products including petrochemicals (RM15.5 billion), basic metal products (RM14.4 billion), paper, printing and publishing (RM7.8 billion), machinery and equipment (RM7.1 billion), chemicals and chemical products (RM6.3 billion), rubber products (RM4.3 billion) as well as transport technology (RM3.9 billion) which contributed nearly 90% of the total approved investments in 2020¹⁶.

¹¹ Corporate Website: <https://www.dosm.gov.my> (Malaysia Economic Performance First Quarter 2021)

¹² Corporate Website: <https://www.mida.gov.my> (Malaysia's manufacturing sales rise 37.2 pct in May 2021)

¹³ Corporate Website: <https://www.mida.gov.my/why-malaysia/investment-statistics/>

¹⁴ Ibid.

¹⁵ Corporate Website: <https://www.miti.gov.my/industry4wrd>

¹⁶ Media Release: Malaysia Records RM164 Billion of Total Approved Investments In 2020 Amid Global Pandemic, MIDA, 2021

ESG/SUSTAINABILITY CONTEXT

23. The National Investment Aspirations (NIA) focuses on inclusivity and sustainability, with ESG goals that serve as an anchor to drive new investments and propel growth in the technologically-sophisticated sectors. This focus will also provide a pathway for investors to access new market opportunities, particularly in developed countries that mainstream sustainability throughout their value chain. In this context, the NIA takes into account the global interest surrounding carbon-neutrality, including the use of technology to help reduce carbon foot-print¹⁷.
24. The Shared Prosperity Vision 2030¹⁸ commits to sustainable development through Enabler 7 (i.e., sustainability), emphasising on the need to harmonise socioeconomic development with preservation of the environment and natural resources. Its guiding principles include Sovereignty and Sustainability, with a focus on strengthening environmental conservation and natural resources in development planning.
25. 189 countries worldwide have joined the Paris Agreement, which commits them to a pathway aimed at limiting the rise in temperature to 2°C while taking steps to decrease it further to 1.5°C. As of 2020, 12 countries¹⁹ have either ratified these targets in law, or are in the process of doing so. A further 18 countries have included the Agreement in policy, while the remaining countries are discussing national contributions to the targets.
26. These growing regulatory developments will have significant ramifications for the future of the manufacturing sector. Countries across the world are beginning to institute more stringent legislative requirements to encourage the consumption of low-carbon goods and improve resource management. Manufacturing exports may become vulnerable to global low-carbon shifts, such as carbon trade barriers, as well as reduced markets for high-carbon intensive products.
27. Four key sectors make up the majority of Industrial Process and Product Use (IPPU) emissions in Malaysia: minerals (e.g., cement), metals, chemicals and electronics. These emissions have grown at a rate of 6% per annum between 2000 and 2016, and as of 2016 contributed 25% of Malaysia's emissions.
28. Global interest in tackling nature/biodiversity loss has grown significantly recently, amidst the pandemic. Suggest including this lens as well particularly considering the manufacturing's implications on resource use and pollution.
29. The manufacturing sector's ESG impacts are related to resource use and management, environmental and social management systems, labour and working conditions, occupational health and safety, and community health, safety and welfare amongst others. These may be further categorised into direct risks that are associated with manufacturing infrastructure or plant and machinery, whereas the indirect risks may be related to operations and activities across the manufacturing life cycle.

¹⁷ Media Release: Investment Policy Reforms to be Rooted in the National Investment Aspirations (NIA), MITI, 2021

¹⁸ Shared Prosperity Vision 2030, Ministry of Economic Affairs, 2019

¹⁹ ECIU Net Zero Tracker

30. Manufacturing businesses are at risk of reputational and financial losses arising from breach of environmental and well as social laws and regulations in their value chain. To exemplify, we have included ESG context for E&E and Plastics (Refer paragraphs 26-44).
31. The impact of E&E activities is significant. By 2040, carbon emissions from the production and use of electronics will reach 14% of total emissions²⁰. This is one-half of the total global transport sector today. By 2050, the volume of e-waste, in the worst-case scenario, could top 120 million tonnes annually, according to estimations from the United Nations University in Vienna. According to the Organisation for Economic Cooperation and Development (OECD), by 2060, the world's consumption of raw materials is set to double²¹.
32. The availability and supply of new materials for E&E devices will be an area of concern in the future. Despite the risks signalled by the rising commodity prices, the global e-waste contains many high-value and scarce materials, such as gold, platinum, cobalt, rare earths, and high quantities of aluminium and tin. Furthermore, the extraction of these materials can pose ESG risks such as human rights issues and deforestation which can affect green procurement practices.
33. As per 2015 data, the extraction of raw materials accounted for 7% of the world's total energy consumption²². This means that transitioning towards a more sustainable use of secondary raw materials in electronic goods could considerably help to achieve the targets set out in the Paris Agreement on climate change.
34. E-waste can contain substances that are hazardous to human health, if not treated or managed properly, including mercury, cadmium and lead. E-waste can potentially pollute water sources and food supply chains, which are serious issues particularly with older products making up today's e-waste. Regulation and some voluntary targets are driving the phase-out of some of the worst offenders in new products.
35. In many countries, women and children make up to 30% of the workforce in informal, crude e-waste processing and are therefore particularly vulnerable²³. Toxic elements are found in the blood streams of informal workers at dumping grounds for e-waste where open burning is used to harvest metals. These dumps have become economic hubs in their own right, attracting food vendors, and are often adjacent to informal settlements, leading to further contamination from the toxic fumes.
36. There are also dire effects of electronic goods on climate change. Every electronic produced has a carbon footprint and contributes to human-made global warming. For instance, the manufacturing of a tonne of laptops can potentially emit 10 tonnes of CO₂. This is to say that the emissions predominantly occur during production, before consumers buy a product. In short, lower carbon processes and sustainable inputs at the manufacturing stage and product lifetime can be key contributors to reducing / managing environmental impact²⁴.

²⁰ Belkhir Lotfi, "How smartphones are heating up the planet," *The Conversation*, 25 March 2018, & Belkhir, L., Elmeligi A., *Assessing ICT global emissions footprint: Trends to 2040*, *Journal of Cleaner Production*, 10 March 2018

²¹ OECD, *Global Material Resources Outlook to 2060*, October 2018

²² World Economic Forum, *Recovery of Key Metals in the Electronics Industry in China*, White Paper, January 2018,

²³ United Nations Environment Programme, *Video of Achim Steiner*, accessed December 2018

²⁴ Minter Adam, "How We Think about E-Waste Is in Need of Repair," *Anthropocene*, October 2016,

37. A total of 67 countries have a legislation to deal with their e-waste, whereas in Malaysia, e-waste is currently managed under the Environmental Quality Regulations (scheduled waste) 2005. Such legislation normally takes the form of an Extended Producer Responsibility (EPR), when a small charge on new electronic devices subsidises end-of-life collection and recycling. The legislation covers about two-thirds of the global population²⁵. In Malaysia, the first EPR was established most recently in 2021. But it mainly focuses packaging waste management by promoting circular solutions.
38. In 2018, Malaysia’s plastics industry contributed RM 30.98 billion (USD 7.23 billion) to the national economy, representing 4.7% of the country’s GDP²⁶. Malaysian plastic manufacturers produced 2.45 million tonnes of plastic resin. The growth of the plastics industry in Malaysia over five decades has brought wide ranging benefits to society and economy growth. However, rapid urbanisation, mismanaged plastic waste and litter from land-based sources are generating significant economic and environmental costs by reducing the productivity of vital natural systems such as the ocean and coastal areas and clogging urban infrastructure.
39. WWF-Malaysia’s EPR Scheme Assessment for Packaging Waste report published in September 2020 estimated that the total annual post-consumer plastic waste generation in Malaysia in 2016 was at 1,070,064 tonnes. According to a recent study published by the World Bank²⁷, in 2019, 1.41 million tonnes per year (TPY) of the four key resins assessed in the study (PET, HDPE, LDPE and PP) were consumed in Malaysia, out of which an estimated 334,000 TPY (24%) were recycled. 1.07 million tonnes per year of plastics are disposed of and 81% of the material value of plastics is lost, leading to a plastic material value loss of USD 1-1.1 billion per year to Malaysia’s economy.

Table 1: Breakdown of Plastics End-Use Industries in Malaysia

End use industry	Breakdown based on revenue
Packaging	48%
Non-Packaging	52%
Electrical & Electronics	27%
Automotive	8%
Construction	8%
Household	3%
Agriculture	3%
Others	3%
Total	100%

Source: Malaysian Plastics Manufacturers' Association (MPMA), "Yearly Production Statistics 2019."
Note: Due to data limitations, industry was not able to provide the tonnage breakdown, but could share the breakdown based on revenue.

²⁵ Baldé, C. P., et al., The Global E-waste Monitor 2017, UNU, ITU, ISWA, 2017

²⁶ White Paper: An Advanced Plastics Recycling Industry for Malaysia, MPMA/MPRA, 2019

²⁷ Market Study for Malaysia: Plastics Circularity Opportunities and Barriers. Marine Plastics Series, East Asia and Pacific Region. Washington DC. World Bank Group, 2021

40. The Malaysian recycling industry is fairly developed, and produces 1.5 million tonnes of recycled resins a year that are worth approximately RM 4.5 billion (USD\$1.125 billion) in revenue²⁸. High-value rigid mono materials such as Polyethylene Terephthalate (PET) and High-Density Polyethylene (HDPE) have a strong existing recycling market in Malaysia as they are easier to collect, and have a higher weight and value per piece. Polypropylene has a wider range of accepted materials for recycling including clear and coloured packaging of food, take-away food containers, and non-packaging items. However, the low-value packaging such as flexibles and sachets are not collected separately and usually end up in landfills and leak to the environment.
41. Ministry of Environment and Water (formerly known as the Ministry of Energy, Science, Technology, Environment and Climate Change or MESTECC) introduced “Malaysia’s Roadmap Towards Zero Single-Use Plastics 2018-2030” in 2018. It is a policy guideline with the aim of ensuring environmental sustainability and eliminating the use of single-use plastic by 2030. Additionally, according to the Malaysia Plastics Sustainability Roadmap 2021-2030, Malaysia aims to achieve the following targets:
- 25% post-consumer plastic packaging to be recycled by 2025
 - 100% recyclability of plastic packaging by 2030
 - 15% average recycled content by 2030
 - 76% average collected-for-recycling (CFR) rate by 2025
42. The Ministry of Environment and Water announced the formation of the Malaysia Sustainable Plastic Alliance (MaSPA), a multi-stakeholder platform that brings together the key players along the plastic value chain to commit to the national targets and to transition to circular economy for plastic. As part of the effort of the MaSPA, the founding members established an Extended Producer Responsibility (EPR) working group to champion EPR discussions and implementation, co-leading by WWF-Malaysia and Coca-Cola Malaysia.
43. Malaysia is now developing a Circular Economy Roadmap for Plastic which addresses plastic production, consumption, recycling and waste management with the aim to keep plastic products and materials circulating in a high value state of use for as long as possible, while offering new ways to mitigate risks to allow the plastics industry to grow and diversify.
44. The Ministry of Housing and Local Government announced the formulation of the National Cleanliness Policy that identified EPR schemes as one of the key drivers for the adaptation of a circular economy in the industrial sector. Similarly, the Economic Planning Unit of Malaysia has proposed the adoption of an EPR scheme in the Twelve Malaysia Plan (12MP) 2021-2025 which will be tabled in the parliament soon, which marks the end of Vision 2020 and sets the way forward for national development agenda.

²⁸ White Paper: An Advanced Plastics Recycling Industry for Malaysia, MPMA/MPRA, 2019

45. The implementation of the EPR scheme²⁹ will begin with a voluntary scheme before transitioning to a mandatory scheme. This takes into consideration the readiness and capabilities of industry players, especially the small and medium-sized enterprises. In the first two years (2021-2022) during the Inception Phase, the government together with industry associations and relevant organisations will advocate for EPR adoption and readiness of the industry through various EPR capacity building programmes, as well as implementation of INSPiRE programmes which will start in 2022. Before moving into a mandatory EPR scheme in 2026, adoption of Voluntary EPR Phase will be implemented nationwide between 2023 to 2025. The Government's expectation will be for industry to participate in the Voluntary EPR phase.
46. The Malaysian Plastics Manufacturers Association (MPMA) and the Malaysian Plastics Recyclers Association (MPRA) laid out their strategy in a white paper published in 2019, titled "An Advanced Plastics Recycling Industry for Malaysia." The white paper marked an important step by the Malaysian plastic industry in putting forward the economic case for developing an advanced and modern industry with the commitment of all stakeholders across the whole plastic value chain through an EPR scheme. Brand owners have set up the Malaysia Recycling Alliance (MAREA) as a voluntary and industry-led based Producer Responsibility Organization (PRO) to demonstrate Extended Producer Responsibility (EPR) implementation for packaging and will be formally incorporated in the near future.
47. FIs and companies should move quickly to consider the potential policy formation and restrictions to business-as-usual activities and turn it into opportunities. In other words, FIs should more closely assess the materiality of plastics and invest in businesses that manage plastics-related risks. FIs can engage with the disclosing companies to support them to effectively communicate the value of their actions.
48. To achieve the goal of reducing the negative impact of plastics, companies should develop clear roadmaps and ambitions on how to tackle the challenge. This will allow them to reduce risks and identify new opportunities. FIs should more closely assess the materiality of plastics and invest in businesses that manage plastics-related risks.
49. The most pressing plastic/waste-related risks were considered to be the impact on companies' reputations and the potential impacts of new emerging regulations. Some of the risks associated with plastic production and pollution including climate risk as the carbon emission from plastic could potentially reach up to 17% of the global carbon budget by 2050, plastic leakage is causing degradation of natural environment leading to health and social risk. Reputational risk stemming from public criticism is another concern as it corresponds to the loss of brand value and market share.

²⁹ Malaysia Plastics Sustainability Roadmap 2021-2030, Catalysing Sustainability and Circularity towards a New Plastics Economy, Ministry of Environment and Water (KASA) Malaysia, 2021

REGULATORY / POLICY CONTEXT

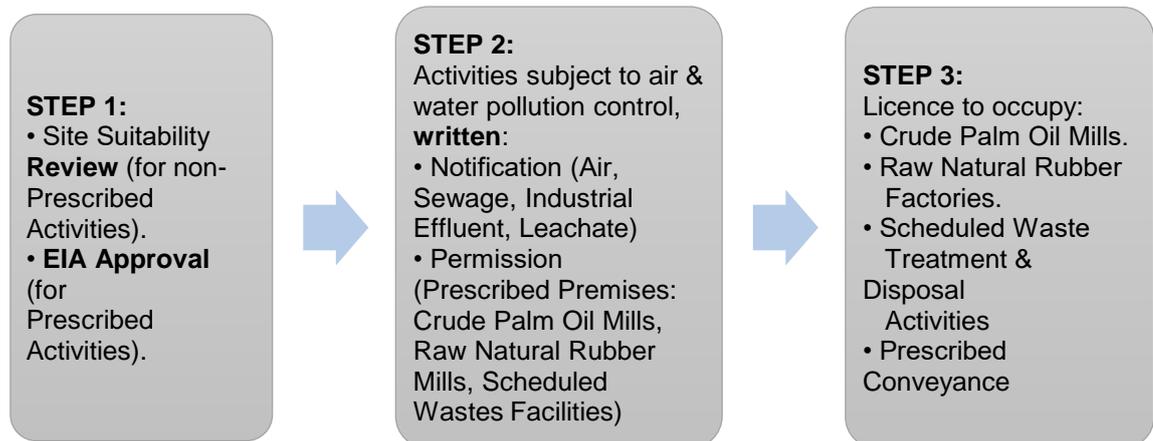
50. Malaysia has announced its intention to be carbon-neutral by 2050, and aims to reduce its economy-wide carbon intensity (against GDP) of 45% in 2030 compared to 2005 level. The updated NDC30 includes an increased ambition: a) The 45% of carbon intensity reduction is unconditional; b) This target is an increase of 10% from the earlier submission; and c) The GHG coverage is expanded to seven greenhouse gasses.
51. Malaysia is also formulating its Long-term Low GHG Emission Development Strategies (LT-LEDS) which will contribute towards achieving Article 2, paragraph 1(a), and Article 4, paragraph 1, of the Paris Agreement. Additionally, at COP26 Malaysia committed to the Global Methane Pledge, which aims for signatories to cut 30% of their methane emissions by 2030. Additionally, the government is planning to table legislation on climate change in the foreseeable future.
52. The 12th Malaysia plan³¹ highlights the importance of the manufacturing sector in reviving the post-pandemic economy. Furthermore, the plan emphasises the importance of shifting towards sustainable economic practices which value natural endowments and environmental health, through addressing climate change, unsustainable consumption and production, biodiversity loss, energy, lack of coherence in policies and inefficient water resources management.
53. A manufacturer is required by law to obtain a manufacturing licence (ML) from MIDA if it meets a certain threshold. The ICA 1975 requires person(s) engaging in any manufacturing activity to obtain a license from the Licensing Officer in respect of the manufacturing activity. The ICA was introduced to ensure an orderly development and growth of the country's manufacturing sector.
54. Manufacturing companies with shareholders' funds of RM2.5 million and above or engaging 75 or more full-time paid employees are required to apply for a ML for approval by MITI.
55. According to MIDA, a company with a paid-up capital/shareholder's fund not exceeding RM2.5 million or manpower less than 75 people may apply for a confirmation letter that the company is exempted from ML approval. The letter, however, can only indicate that the company is exempted from ML and does not carry the same weight as a ML. Once companies reached the threshold of RM2.5 million of shareholders' funds or employing 75 workers or more, they should immediately apply for ML.
56. In Malaysia, EIA is a statutory requirement for activities which have been prescribed under Section 34A of the Environmental Quality Act 1974 and the Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 2015. For Sabah, the applicable legislation governing EIA is the Environment Protection Enactment, 2002 administered by the Sabah's Environmental Protection Department (EPD), while for Sarawak, the Natural Resources and Environment Ordinance, 1993 administered by the Natural Resource and Environment Board (NREB).

³⁰ Malaysia updated NDC submission to UNFCCC, July 2021

³¹ Twelfth Malaysia Plan (2021-2025), A Prosperous, Inclusive, Sustainable Malaysia, Economic Planning Unit, 2021

57. Under the Environmental Quality Act (EQA) 1974 and the Regulations thereunder, industrial activities are required to obtain the following approvals from the Director General of Environmental Quality prior to project implementation (Refer to Appendix I: Policies & Initiatives and their Key Mandates)

Diagram 2: Application Procedure for Environmental Requirements in Malaysia



58. There are also minimum conditions of employment that also covers legislation of labour and labour matters, which the manufacturers must abide by law. These are in addition to other regulations on corporate governance, ethics, and grievance mechanisms. (Refer to Appendix I: Policies & Initiatives and their Key Mandates and Appendix III : Certifications & Standards)

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D. SECTOR GUIDANCE

IMPACT-BASED RISK MANAGEMENT SYSTEM

59. The FIs should clearly articulate their position as well as policies on various ESG risks in the Manufacturing sector and communicate those to the businesses under assessment. This is mainly to maintain a degree of transparency in the due diligence mechanism as well as encourage FIs to raise awareness on various risks and their associated direct and indirect impacts. The idea is to take a nurturing and progressive approach to help shape sustainable businesses.
60. It is recommended for the FIs to strengthen their current risk evaluation framework or processes to include various dimensions of impact (for e.g., ESG risks contributing to impairment, weak credit ratios, liabilities, reputational and punitive damages etc.) to the existing credit risk management practices (which is by default the base approach), as well as make reference to the interconnectedness between the material impacts an FI has on the environment and how the environment will impact the FI. The purpose of including impact-based dimensions is to drive the Manufacturing sector to adopt ESG practices, which will benefit both Manufacturing operators and FIs in the long
61. Manufacturing project development and operation activities can result in impacts to the physical and social environment. The type and severity of impacts that may occur depend upon many factors, including the stage and timing of an activity or process; the size and complexity of a project or operating facilities; and the nature and sensitivity of the surrounding physical and social environment
62. As Malaysia navigates its way in the transition towards a low-carbon nature-positive economy, the Government will continue to adopt a market-driven approach³². However, if not managed responsibly, these activities can have unacceptable adverse impacts on people or on the environment. Customers can improve their environmental and social performance by addressing key impacts of their project development and operational activities.
63. FIs should also promote the following principles to advance ESG performance of Manufacturing sector.
 - 63.1 Adopt a Risk-based Approach: Customers to implement programmes using a risk-based perspective which will help assess and reduce risks and impacts of their activities on the environment and societies.
 - 63.2 Apply Best Available Techniques (BAT): Refers to adopting the most effective methods of operations in achieving high level of protection on a scale which allows implementation under economically and technically viable conditions. Techniques refer to both the technology used and the way in which they are designed, built, maintained, operated and decommissioned.

³² Media Article: Govt's approach to climate change issues outlined in the Malaysian Climate Change Action Council-KASA, The Sun Daily, 2021

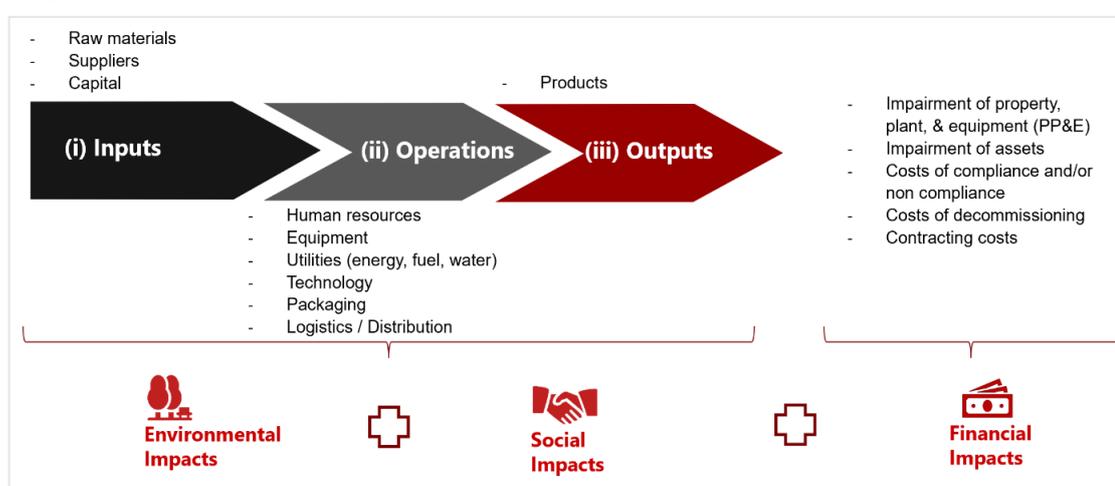
- 63.3 Act per Precautionary Principle: Customers to take a precautionary approach to mitigating various impacts from its business activities. When there are threats of serious or irreversible damages, lack of full scientific certainty should not be used as a reason for postponing cost-effective measures to prevent environmental degradation.
- 63.4 Engage Stakeholders: Customers to implement a proactive programme to engage and consult members of the public/communities and ecosystem partners/stakeholders in relation to the management of environmental and social impacts.
- 63.5 Integration of Shariah governance: It is also recommended for Islamic FIs to integrate Shariah governance in their evaluation framework to obtain responses and advice from Shariah perspectives for decision-making purposes. The FIs should determine the role of Shariah governance functions in providing such responses including the application of *Maqasid al-Shariah* in assessing the priorities and impact-based dimensions based on *daruriyyat* (essentials), *hajjiyyat* (needs) and *tahsiniyyat* (embellishments). With regard to the application of the Shariah principle on attainment of benefits and prevention of harm, it may require Shariah guidance and deliberation, for e.g., when making a choice between two harms when there is a constraint whereby the lesser of the two must be chosen. In addition, the prevention of public harm should be given priority over individual harm as guided by relevant Shariah principles.
64. Apart from the above principles, FIs should also encourage customers to be equipped with knowledge, understanding and application of the internationally accepted and adopted methodologies and tools for identifying process hazard and management of associated risks. In short, the FIs should prioritise or incentivise customers with relevant certifications and recognised standards. (Refer to Appendix III: Certifications & Standards)

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Risk Identification & Transmission

65. Along the value chain of Manufacturing sector, there are various material environmental and social risks in addition to the financial risks that continue to threaten the assets, the performance, value creation and preservation. There is merit in the concept of ‘Double Materiality’, where FIs identify the ESG risks that impact your Manufacturing customers’ business and also the impacts of FIs’ customers’ business on the environment and society. In both instances, there could be financial implications, which should be taken into account during customer due diligence. Additionally, as also stated in VBIAF (paragraphs 41-43), FIs should consider aligning material matters with national/sectoral priority / focus areas.

Diagram 3: Manufacturing Value Chain – Dual Materiality



66. FIs should identify and balance trade-offs between the positive (benefits) and negative (risks) impacts related to financing and/ or investing (and any other relevant financial activities) in this sector.
67. The identified impact areas and risks can have financial (in the form of costs of remediation, fines and penalties, litigation etc.) and reputational implications if not well managed. These are also the areas (when proactively managed) that present significant opportunities to deliver stakeholder value.
68. Table 2 : Manufacturing Lifecycle & Risk Transmission³³ (below) provides a brief description of various ESG impacts and the risk transmission across various stages of Manufacturing Lifecycle. The identified impact areas and risks can have financial (in the form of costs of remediation, fines and penalties, litigation etc.) and reputational implications if not well managed. These are also the areas (when proactively managed) that present significant opportunities to deliver stakeholder value.

³³ The list is not comprehensive and have been adapted from various internationally accepted frameworks such as the Global Reporting Initiative; IFC Performance Standards for Environmental and Social Sustainability; and SDGs Corporate Reporting Guidelines amongst others.

Table 2: Manufacturing Lifecycle & Risk Transmission

MANUFACTURING LIFECYCLE & RISK TRANSMISSION			
Impact / Risk Categories	Inputs	Operations	Outputs
<p>Environmental Environmental harm, including GHG Emissions, from manufacturing activities is responsible for global warming, which further triggers natural disasters and extreme climatic conditions which again affect Manufacturing activities. The following risks / impact areas can severely affect issuer credit quality due to mounting liabilities from environmental remediation, fines, and litigation from consumers, civil society, and even, government (based on the magnitude of impact).</p>			
<p>Climate/ GHG emissions</p>	<ul style="list-style-type: none"> • Extreme weather conditions (e.g., cyclones, floods, and droughts) could impact supply and procurement of raw materials 	<ul style="list-style-type: none"> • Extreme weather conditions (e.g., cyclones, floods, and droughts) could impact the physical manufacturing infrastructure as well as flow of labour, compromising productivity or causing product losses • Manufacturing facilities require large amounts of energy, such as in the production facilities of iron, steel and other metals. High delivered-energy consumption or inefficient use of energy throughout the production process result in high greenhouse gas emissions • Fugitive emissions 	<ul style="list-style-type: none"> • Usage of non-bio-degradable waste such as plastic may result in higher emissions (especially in landfills) • Some manufacturing product, such as electronic devices and automobile, consume big amount of energy and fuel which release GHG emissions during use
<p>Water</p>	<ul style="list-style-type: none"> • Destruction of riparian zone • Inefficient use of water in regions with high water source vulnerability • Water shortages will likely arise from the increasing demands due to the increase in population size 	<ul style="list-style-type: none"> • Inefficient or high usage of water impairs production specifically in water-stressed areas • Some manufacturing process (e.g., textile production) may require large amount of fresh water for water-intensive production steps (e.g., washing raw materials, cleaning, cooling, heating, and other wet-processing stages). A reliable water supply is essential for ensuring continuity of production. Where water supply is limited, conflicts with other uses may arise • Overuse and depletion of freshwater • Accidental spills and leakages that may lead to soil and groundwater and surface water contamination • Impacts to freshwater and ocean biodiversity 	

<p>Pollution and waste</p>	<ul style="list-style-type: none"> • Land clearance (e.g., to prepare for factories constructions) through open burning results in air pollution • Accidents in the transportation stage resulting in spills 	<ul style="list-style-type: none"> • Improper transportation of products could result in accidental spills of hazardous materials • Air pollution (VOC, NO_x, SO_x, PM10, CO, CO₂, etc.), particulate matter, odour pollution, emissions of metals and chemical substances from various manufacturing practices e.g., smelting and refining and food processing. Metal dusts may result in long-term contamination and poisoning • Manufacturing facilities may produce significant amount of waste which should be disposed and managed properly based on its type and risk to the environment. The waste from metal production includes furnace slag and collected dusts in a large number, which presents risks related to the quantity of solid waste rather than its toxicity • Accidental release of hazardous chemicals, substances, sludge, contaminated wastewater and stormwater discharge and/ or acid drainage (from factories) to land or groundwater and leakage to freshwater systems and oceans, such as oil and grease, biocides and dyes, cyanides, PCBs and metal wastes • Noise pollution from manufacturing activities • Contamination of natural environment may occur due to spills from manufacturing / production process, leaks in tanks or pipes, and disposal of waste 	<ul style="list-style-type: none"> • Inefficient disposal of effluents or inadequate pre-treatment causes pollution to underground or surface water resources, destroying marine ecosystems and / or endangering surrounding communities • Inappropriate disposal of solid and liquid wastes pollutes water bodies / aquatic systems • (Wastewater streams from manufacturing may be acidic, have high total biological or chemical oxygen demand, oils, dissolved heavy metals and solvents, pigments, paints and dyes as well as high total levels of suspended solids) • River flow and connectivity impacts from dams built in river systems • Flooding and silt deposits into rivers as a result of soil erosion • Accidents in the transportation stage resulting in spills • Waste production and disposal - impacts caused by the disposal of waste products and / or waste packaging
<p>Resource use and efficiency</p>	<ul style="list-style-type: none"> • Non-renewable and non-sustainable materials – the use of these materials, such as timber, could deplete supplies of natural resources and may cause serious environmental, biodiversity and 	<ul style="list-style-type: none"> • Inefficient use of resources in respect of ratio of raw materials used to finished product results in lower productivity and higher waste • Rising cost of energy due to increasing commodity prices 	<ul style="list-style-type: none"> • Material composition - whether the product comprise recycled, renewable or reused materials, or are non-renewable or hazardous

	<p>social damage during extraction and production</p> <ul style="list-style-type: none"> • Resource intensive - Large amounts of energy and other resources may be required to produce the inputs • Harmful materials - Some inputs may comprise substances that are restricted by law or that are toxic to health and the environment • Unsustainable extraction or production of raw materials could result in volatility of prices and impact both sustainability and traceability of supply chain 	<ul style="list-style-type: none"> • Inefficient use of energy throughout the supply chain and the related costs 	<ul style="list-style-type: none"> • Inefficient production processes resulting in high waste production, affecting productivity and margin • (Mainly due to insufficient efforts on promoting transition towards circular economy where end-of-life products are repaired, reused, refurbished and remanufactured)
<p>Social</p> <p>Social inequalities and unrest, community exploitation and chaos are a threat to securing licence to operate. For instance, opposition from communities and even government can potentially delay the development of Manufacturing projects or significantly increase the full-cycle costs, making them unviable, difficult to plan growth and assure returns on capital. Similarly, Manufacturing players have to incur high costs to educate and ensure safety and compliance with local regulations, affecting CAPEX etc.</p>			
<p>Labour rights and working conditions</p>	<ul style="list-style-type: none"> • Use of undocumented migrant labour and potential exploitation of vulnerable workers (e.g., forced labour including modern slavery indicators or child labour) • Unsafe working conditions and lack of benefits (e.g., sub-standard labour conditions, excessive working hours, lack of healthcare protections, failure to pay minimum wage, withholding of documents, contract substitution, inadequate and unhygienic living quarters etc.) • Gender/racial inequality and marginalisation in the workplace 		
<p>Occupational Safety and Health (OSH)</p>	<ul style="list-style-type: none"> • Accidents in the transportation stage resulting in injuries and/or fatalities 	<ul style="list-style-type: none"> • Poor safety guidelines and measures increase risk of potential physical hazards and injuries/fatalities of employees, especially in handling machinery, exposure to harmful hazardous chemicals and toxic substances, dust, biological hazards, fires, accidents and explosions etc., resulting in loss of labour capacity, higher or additional legal and insurance costs, persecution or fines and penalties from non-compliance etc. 	<ul style="list-style-type: none"> • Accidents in the transportation stage resulting in injuries and/or fatalities

		<ul style="list-style-type: none"> • Electrical and gas accidents caused by negligence and loss of labour productivity as a result from incidences of injuries/fatalities • Some manufacturing facilities poses risks to workers' health, e.g., noise, exposure to hazardous substances (metal dust, fumes, chemicals), heavy machinery, heat, active substances, and electricity • Electrical and gas accidents caused by negligence and loss of labour productivity as a result from incidences of injuries / fatalities • Accidents in the transportation stage resulting in injuries and/or fatalities 	
<p>Human rights and community relations</p>	<ul style="list-style-type: none"> • Social opposition and criticism over land use conflicts impose additional costs of remediation • Displacement of communities, involuntary resettlement and violation/infringement of rights of indigenous/vulnerable groups 	<ul style="list-style-type: none"> • Noise, vibration, dust, exhaust transmissions, accidental release of toxic chemicals, fires, odours and contamination of land, resources and property, etc. endanger community health and safety, which potentially increase • compensation claims from surrounding communities exposed to immediate and long-term risks • Potential communicable diseases spread from workforce to local communities • Gaps in female participation and exacerbation of socio-economic inequalities in local communities including economic displacement 	
<p>Governance Good governance, including efficient policies to support the transition to a low-carbon industry or economy. Reputational and punitive damages as well as investigations that result in sanctions may affect cash and credit position of businesses.</p>			
<p>Governance mechanism</p>	<ul style="list-style-type: none"> • In adequate procurement policies and enforcement strategies to effectively monitor and manage raw materials sourcing increase both risks and costs of compliance. 	<ul style="list-style-type: none"> • Lack of resources and dedicated technical expertise on various parts of the manufacturing processes increase inefficiencies and related costs. 	

69. The Tables below provide some illustrations of various impact-based/ESG risks that are typical for E&E, Plastics, and Iron & Steel. These are based on the Greenhouse Gas (GHG) Protocol, a widely used international accounting standard to quantify the direct (Scope 1) and indirect emissions (Scope 2 & 3) associated with the industry’s life cycle. This guidance however focuses only on the Scope 1 and Scope 2 risk impacts of the general (E&E) and carbon intensive manufacturing sectors (plastics and iron & steel).

Table 3: Electrical & Electronics (E&E) Lifecycle & Risk Transmission

Inputs	Operations	Outputs
<ul style="list-style-type: none"> • Procurement of raw materials - mining of rare earth minerals (minerals such as tin, tantalum, tungsten, gold, and cobalt, which are key materials used in electronic equipment) is damaging the environment and health condition of nearby communities • Sourcing raw materials from conflict zones or countries that are known for exploitation of human rights, war and war crimes, social unrest etc. 	<ul style="list-style-type: none"> • Perfluorocarbon Compounds and Other Greenhouse Gases – PFCs—including CF4, C2F6, and C3F8—nitrogen trifluoride (NF3), HFC-23 (CHF3), and sulfur hexafluoride (SF6) are used in semiconductor manufacturing, as cleaning gases in chemical vapor deposition (CVD) systems, in plasma etching, and, primarily, in thin film transistor-liquid crystal display (TFT-LCD) screens manufacturing. The main environmental issue associated with PFCs is their high global warming potential (GWP), which is linked to their long atmospheric life • Energy use – During the manufacturing process of E&E products • Water use and wastewater - Manufacturing semiconductors require large volumes of ultra-pure water. The wastewater effluents from the E&E manufacturing operations may be impacted by organic and inorganic compounds (e.g., metals, acids and alkalis, cyanides and suspended solids. The process wastewater may include organic compounds (particularly non-chlorinated solvents) from semiconductor and printed circuit board assembly manufacturing steps • Air pollution - toxic, reactive and corrosive substances (e.g., acid fumes, cleaning gases, and VOCs) resulting from diffusion, cleaning, and wet-etching processes • Dust - Drilling and routing processes during PCB (Printed Circuit Board) manufacture generate significant amounts of dust 	<ul style="list-style-type: none"> • Perfluorocarbons (PFC) emissions attributable to the manufacture of E&E products which contribute significantly to the global warming • Electronic product waste - The high turnover rate for electronic equipment fuelled by innovation and fashion trends has created an ever-growing challenge of how to deal with the end-of-life product disposal • Energy consumption required in the use of electrical product - Electronic equipment should be designed to consume a minimum of electrical energy

	<ul style="list-style-type: none"> • Hazardous materials and wastes - Almost all processes in electronics manufacturing generate hazardous or potentially hazardous wastes, such as spent deionized water (containing inorganic acid), spent solvents and developers (e.g., iso-paraffinic hydrocarbons), spent cleaning solutions, sludges from wastewater treatment, spent epoxy material (printed circuit board [PCB] and semiconductor manufacturing), spent cyanide solutions (electroplating), and soldering fluxes and metals residue (printed circuit board assembly [PCBA]) • Labour rights and working conditions – involvement of children in the mining of cobalt, the main ingredient in a lithium-ion battery. Electronic manufacturers have been facing growing scrutiny and criticism over its labour management. Issues related to long working hours, poor working conditions, and lax occupational safety standards are major areas of concern, particularly in Asia • OSH - exposure to hazardous chemicals, physical and energy hazards (kinetic, electrical, pneumatic, and hydraulic), exposure to equipment modifications and raw material substitution or elimination are the main risks for E&E manufacturing 	
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- **Note:**
There are specific regulations on E&E products which main rationale is to ensure safety and consumer protection.
- A Certificate of Approval (CoA) is required. To obtain approval, the following are needed:
 - Test reports from local or foreign laboratories which are acceptable to EC; Certificate of Conformity (CoC) from local or foreign Conformity Assessment Bodies (CAB) which are acceptable to ST; Electronic submission of CoA application via e-permit to ST; and SIRIM Product Certification Scheme/SIRIM Batch Testing Scheme (every consignment is subjected to inspection and testing); and SIRIM-ST label.

Table 4: Plastics Lifecycle & Risk Transmission

Inputs	Operations	Outputs
<ul style="list-style-type: none"> Procurement of raw materials - Plastic is made from the by-products of oil refinement. Extraction and refinery of oil are major source of CO₂, hazardous and toxic air emission, water and soil pollutants Extraction and refinery of oil are major source of CO₂, hazardous and toxic air emissions, water and soil pollutants - specifically releases toxic chemicals such as trichloroethane, acetone, methylene chloride, methyl ethyl ketone, styrene, Toluene, benzene, and 1,1,1 trichloroethane 	<ul style="list-style-type: none"> Air pollutants – plastic products manufacturing may produce VOCs, ammonia, dust, and fine particles during the production process Excessive use of water – plastics production may require large amounts of water for cooling and heating, vulcanizing, cleaning, and finishing operations Wastewater – wastewater from plastic production may contain solvents, oils, water-soluble and insoluble organic compounds, and solid particles with dimensions from submicron to several millimetres (e.g., microplastics) OSH – physical and chemical hazards (including fire, explosions, air quality, and dermal exposure) are the main hazards of plastic manufacturing. In addition to creating safety problems during production, many chemical additives that give plastic products desirable performance properties also have negative environmental and human health effects. Direct toxicity, as in the cases of lead, cadmium, and mercury; or carcinogens, as in the case of diethyl hexylphosphate (DEHP). Problem chemicals are used as plasticizers, antioxidants, colorants, flame retardants, heat stabilizers, and barrier resins Human & community relations – plastic manufacturing may involve high-temperature and high-pressure processes as well as toxic and flammable substances. A disaster in the plant may cause physical damage over large areas (fires, explosions) and present a health risk for residents in the surrounding areas (release of toxic chemicals) 	<ul style="list-style-type: none"> Toxic Emissions - Plastic wastes that are imported illegally are often contaminated and are of lower grades, which are often burned illegally, resulting in the release of toxic substances Water Pollution - Inadequate waste management system and mismanagement of plastic waste has led to plastic spilling into oceans and waterways. In the oceans, plastic debris accounts for over 90% of all encounters between debris and individuals. It also has detrimental negative effects on wildlife and marine ecosystem Toxic Waste - Continued production and usage of hard-to-recycle and low value and flexible post-consumer plastic (which are usually not collected separately, or recycled or treated) contributes to toxic waste Ground Pollution - Untreated plastic waste is hard to decompose and released toxic substances into the soil and groundwater when plastic perish into microplastics and affect food systems

- Note:** Malaysia's Roadmap Towards Zero Single-Use Plastics 2018-2030 was developed through the active and dedicated participation of various stakeholders such as NGOs, academia, industry, retailers, GLCs, CLGs, federal agencies and state governments. The roadmap spells out Malaysia's plans to address single-use plastics by encouraging the plastics industry to transition to eco-friendly products. This Roadmap aims to provide a policy direction to all stakeholders including State Governments in taking a unified and collective approach. While Malaysia continues to strive to be a fully developed nation, the economic advances should be balanced with the environmental protection to ensure sustainability and societal wellbeing.
- FIs could identify plastic-related risks and opportunities based on three main industry groups, i.e., plastic manufacturers, plastic users and plastic waste managers. This could provide a general overview of their impact on the basis of their position in the plastic value chain.
- The plastic-related risks identified can result in financial impact that can impair the FIs' soundness. The physical risks include increase carbon emission from the increase plastic production and disposal, and tourism industry is directly and adversely impacted by plastic pollution. The transition risks involved the expectation of new policies formulation and stringent regulations in relation to plastic impact by the government. In addition, financial risk will be triggered by potential increase of operational and compliance costs arising from the imposing of green taxes, bans, trade restrictions by The Government. (Refer to Appendix V : Essentials Readings for Plastic-Related Risks and Opportunities Faced by Each Industry Group).

Table 5: Iron & Steel Lifecycle & Risk Transmission

Inputs	Operations	Outputs
<ul style="list-style-type: none"> Sourcing of raw materials – the mining of iron and steel creates a number of environmental and social risk. Including air and water pollution, land clearance, biodiversity risk, etc. Raw materials are delivered by ship, rail or road and generally require handling and transport. The materials give off dust to a greater or lesser degree 	<ul style="list-style-type: none"> Climate/GHG emissions – iron and steel manufacturing are the largest industrial emitter³⁴. The GHG emissions associated with iron & metal productions are from the carbon dioxide emissions comes from a high energy consumption, reduction of iron ore using carbon, etc. Excessive use of water – metal and steel production may require large amounts of water for cooling systems Waste water and liquid waste in metal and steel production may contain toxic substances which present a risk to water quality including wastes from electroplating (containing heavy metals), oil and grease and non-soluble metal compounds Water emissions come from the water used to cool coke after it has finished baking. Quenching water becomes contaminated with coke breezes and other compounds Air pollutants - coke production is one of the major pollution sources from steel production. Air emissions such as coke oven gas, naphthalene, ammonium compounds, crude light oil, sulfur and coke dust are released from coke ovens. Specific air pollutants also include CO, SOx, NOx, PM2 Noise - The various production and ancillary processes in a steel works create noises to the surrounding. In a typical integrated iron and steel works, noise results from; production and fabrication operations, handling and transport of raw materials, semi-finished and finished products, aerodynamic and hydrodynamic sources Hazardous material - potential sources of hazardous waste produced in iron and metals manufacturing process such as sandblasting (grit), smelting & refining (acids, alkalis, chemical reagents; and process gases) 	<ul style="list-style-type: none"> Waste production and disposal - Slag, the limestone and iron ore impurities collected at the top of the molten iron, make up the largest portion of iron-making by-products. While most of the them are recycled, the excess was usually sent to landfills for disposal Hazardous production waste leads to contamination of environment and degradation of ecosystem

³⁴ Challenges & opportunities for the steel industry in moving towards green growth, OECD, 2010

	<ul style="list-style-type: none"> • Waste - Iron and steel making processes give rise to significant amounts of waste. The most common type of wastes generated in steel plant are: Solid wastes like, hot metal pre-treatment slag, dust, GCP sludge, mill scale, refractories, scrap, muck & debris, etc. and liquid wastes like industrial effluent, oil, grease, etc. Gaseous wastes like flue gases, fume extraction, etc. • OSH – physical and chemical hazards (including fire, explosions, air quality etc.) 	
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Note:

The Government has issued revisions to the iron and steel policy that are expected to benefit local players across the value chain in the long run and developing a more resilient, competitive and sustainable industry. Amongst the revisions are:

- Tighter conditions for the issuance of new manufacturing licences;
- An extension until Dec 31, 2021 of the current duty structure, including for long and flat products, ranging from 5% to 15%;
- A 15% export duty on ferrous scrap with export licence mechanism;
- Options for import duty exemption application or duty drawback facility for export purposes through licensed manufacturing warehouse and free zone;
- Stricter considerations for manufacturing licences for scrap metal recycling activities;
- For metal scrap importation, manufacturing licence holders undertaking recycling activities are now allowed to import metal scrap for iron and steel, copper and aluminium while traders are not allowed to import metal scrap. For more recent guidelines on metal scrap, refer to Appendix V : Essential Readings.

Risk Measurement³⁵

70. In assessing the risks and impacts, FIs should develop different sets of metrics/ indicators for different categories of risks or ESG pillars. Where the metrics or indicators are 'Policies', FIs should investigate if such policies are supported with time-bound programmes, targets, management accountability and oversight.
71. FIs should assign appropriate risk score/level for each of the impact metrics/indicators. As stated in footnote 52 of VBIAF, FIs should consider factors such as the likelihood and materiality of the impact-based risks, consideration of stakeholders' interest, national priorities/ targets, and its own risk appetite as well as maturity of ESG adoption and integration. The assessment should include, where relevant, an analysis of the severity of the ESG risks, as well as capacity, commitment and track record of the customer in managing such risks. Transactions with higher ESG risks should be subjected to in-depth due diligence, which may include site visits and independent review by environmental risk specialists.
72. **Guide to read / apply the following Risk Assessment Table:** The level 1 and level 2 assessments can be undertaken in phases (one after the other or simultaneously) depending on the risk appetite, the maturity of ESG adoption and integration, level of ESG governance etc. Where necessary and relevant, FIs may choose to partner with experts and external assurance bodies to conduct various assessments and generate evidence-based reports.
 - 72.1 Level 1: The preliminary assessment can be objective, mainly to determine if the businesses produce / track / monitor the most fundamental of widely accepted metrics using a polar question of YES/NO. A 'YES' would qualify positive scoring, where as a 'NO' could attract a negative or zero scoring.
 - 72.2 Level 2: The next level of assessment could be subjective, where specific thresholds or parameters could be set by FIs assigning weightages or different scores based on the quality (high, medium, low); extent of fulfilling the set thresholds / parameters (%); reduction in negative impact year on year (% / trend); positive impact from various measures taken such as technology deployment, new policy enforcement etc. (subjective indicators of positive impact on environment or communities) etc.
 - 72.3 While the table below provides some examples of transaction-level risk metrics that can be assessed for scoring, please refer to Appendix V: Essential Readings, for additional references to international frameworks that may prescribe comprehensive list of thresholds and parameters, where applicable.

³⁵ As stated in paragraph 52 of VBIAF, impact assessment should be conducted at both customer and transaction levels. The guidance provided in this document focuses on transaction-level risks but may also be used to assess customer-level risk. Customer-level on-boarding process is stated in paragraph 40 and Table 3 of VBIAF.

Table 6: Transaction-level Risk Metrics and Risk Score

Impact / Risk Categories	Inherent Risk Level	Sources of Metrics	Mitigation	Risk Score Level ³⁶
Climate/ GHG emissions	High / Medium / Low	<ul style="list-style-type: none"> • Emissions Abatement Strategy Document • Climate Adaptation Strategy • Public Disclosures (Sustainability/Integrated Report, CDP, GRI Standards etc.) • GHG Emissions Data, covering scope 1 & 2 (in absolute terms, physical activity-based emission, or economic-based emission) <ul style="list-style-type: none"> • From Refrigerants such as Chlorofluorocarbons (CFCs), Hydrochlorofluorocarbons (HCFCs), and Hydrofluorocarbons (HFCs). • From Waste channelled to landfills (reduction compared to conventional energy source, CO₂-eq/MWh) • From logistic (Shipping of materials, staff commuting, shipping of finished products) <p>(Refer to Appendix V – Essential Readings for GHG Calculator / Methodology)</p>	Better Terms subject to consistent reductions	<p>Metrics for total energy consumed during the production; emissions factor i.e., tCO₂e per production output; production volume trajectory; change in planned production; projection of production capacity; tCO₂e per year (profile or average annual figure); tCO₂e lifecycle emissions; GHG avoided (tCO₂e) over the lifetime of the asset as compared to a defined baseline; use of alternative fuels and renewable energy; GHG reduction targets; % or target to increase share of green revenues etc.</p> <p>Level 1: Polar Analysis (Yes / No) Measured the carbon footprint as per the defined boundary and scope and have published relevant reports / documents</p> <p>Level 2: Qualitative (High / Medium / Low) High: no reduction targets or mitigation action plan Medium: some evidence of mitigation action plan but, not targets Low: consistent reduction of emissions and progress towards achieving targets³⁷</p>
Water	High / Medium / Low	<ul style="list-style-type: none"> • Water Source Vulnerability Assessment • Effluents Management Plan • Water Management Policy • Water Quality Index (that checks for Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Total Suspended Solids (TSS), Oil & Grease (O&G, Ammoniacal Nitrogen, Turbidity, Faecal Coliform etc.) 	Better Terms subject to consistent reductions	<p>Metrics for total water withdrawn and water consumed, water savings, recycled water used, % of water withdrawn and consumed from high baseline water stress, % of wastewater treatment works meeting licencing conditions, chemical usage, waste produced by revenue, waste reduction, % of waste diverted from landfills and other disposal options, % of reusable/recycled material, % of hazardous material over total waste, fine particulate matter</p>

³⁶ The risk score/level provided is an example. FIs can use either a numeric score (1-5) or categorisation (High, Medium, Low) according to their respective internal risk methodologies. FIs should determine the appropriate risk score/level based on their respective risk appetites. Examples for some of the risk scores/ levels are intentionally not provided as they will depend on the respective project/ transaction baselines. From risk management perspective, inherent risk means an assessed level of raw or untreated risk i.e., natural level of risk without doing anything to reduce the risk. However, this definition should be applied in the context of the project / transaction and with due consideration to the materiality of impact/risk categories.

³⁷ Targets can be expressed either in absolute emissions or carbon/emissions intensity

				<p>emissions, measured using mean PM₂₅ and PM₁₀ emissions, baseline water stress,, water scarcity, projected change in drought occurrence, drought frequency probability, estimated flood occurrence, projected change in flood occurrence etc.</p> <p>Level 1: Polar Analysis (Yes / No) Defined a water management policy and undertaken / tracked water vulnerability, quality, and waste assessments</p> <p>Level 2: Qualitative (High / Medium / Low) High: no policy and/or assessments Medium: policy defined but partial assessment with some mitigation action Low: policy in implementation and assessments undertaken, with targets and action plan</p>
Pollution and waste	High / Medium / Low	<ul style="list-style-type: none"> • Pollution & Waste Management Strategy e.g., waste disposal through: 1) reuse 2) recycling, 3) incineration,4) landfill 5) other means • On-Site Assessment / Report (waste/ effluent/ chemical storage, handling and disposal) • AQI (Air Quality Index) Report 	Disbursement subject to effective mitigation	<p>Metric for chemical usage / water quality / waste produced by revenue/ waste reduction / % of waste diverted from landfills and other disposal options / % of reusable/recycled material / % of hazardous material over total waste etc.</p> <p>Level 1: Polar Analysis (Yes / No) Defined a waste management policy or strategy with assessments / audits on waste</p> <p>Level 2: Qualitative (High / Medium / Low) High: no policy and/or assessments Medium: policy defined but partial assessment with some mitigation action Low: policy in implementation and assessments undertaken, with targets and action plan</p>

<p>Resource use and efficiency</p>	<p>High / Medium / Low</p>	<ul style="list-style-type: none"> • Inventory of Raw Materials & Impacts³⁸ (Life Cycle Assessment) • Procurement Strategy / Sustainable Sourcing Policy 	<p>Better Terms subject to consistent use of sustainable and recycle materials</p>	<p>Metrics for proportion of non-renewable and non-sustainable materials, use of restricted substances, % of recycled or reused materials used, integration of environmental aspect into product design (e.g., recyclability of the products), energy consumption in using the products etc.</p> <p>Level 1: Polar Analysis (Yes / No) Defined a sustainable sourcing policy and criteria and an inventory maintained</p> <p>Level 2: Qualitative (High / Medium / Low) High: no inventory and/or policy Medium: policy defined but not implemented as strict criteria Low: policy in implementation and sourcing criteria delivers positive ESG impacts</p>
<p>Labour rights and working conditions</p>	<p>High / Medium / Low</p>	<ul style="list-style-type: none"> • Collective Bargaining Agreements • Labour Welfare and Wellbeing Provisions / Policies • Labour Management Policy (formal contracts, training, minimum wage vs. living wages, overtime etc.) • Grievance/ complaints Mechanism (including Transparent, Safe & Independent Grievance Procedures) • Desktop/ On-site Assessment / Report (working conditions, living arrangements etc.) • Non-Discrimination and Gender Equality Policy • Gender-based Violence and Harassment (GBVH) Policy • Equal Opportunities Policy (in the company's workforce and procurement practices) 	<p>Disbursement subject to effective mitigation</p>	<p>Metric for % of workforce covered under collective bargaining agreements; % of migrant and vulnerable workers; number of equal opportunities in company's workforce and procurement practices; % covered by insurance; quality of housing and sanitation; minimum wage vs. living wage ratio; % of dispute resolution (issues reported and how they were resolved) etc.</p> <p>Level 1: Polar Analysis (Yes / No) Defined all relevant policies and tracked relevant metrics</p> <p>Level 2: Qualitative (High / Medium / Low) High: no policies and programmes Medium: policies defined but metrics tracked partially</p>

³⁸ An established and internationally recognised life cycle assessment (LCA) to properly understand upstream and downstream impacts. The LCA could be evaluated based on the contribution of the production process to the environment, including categories such as global warming potential (GWP), land acidification, land occupation, respirable organic, and human toxicity.

				Low: policy in implementation and programmes deliver positive data on social impact
Occupational Safety and Health (OSH)	High / Medium / Low	<ul style="list-style-type: none"> • OSH Management – Policy, Training, Monitoring, Audits • Machinery Maintenance Reports • Steam Engineer's Certificate of Competency • OSH Records / Audit Report • OSH Training Plan / Coverage 	Better Terms subject to consistent OSH track record	<p>Metric for number/rate of occupational injuries/ accidents / health issues / fatalities; legal cases/disputes ; % workers covered by takaful/insurance & compensation policy; satisfactory machinery maintenance reports; satisfactory training reports etc.</p> <p>Level 1: Polar Analysis (Yes / No) Defined all relevant policies and tracked relevant metrics</p> <p>Level 2: Qualitative (High / Medium / Low) High: no policies and programmes Medium: policies defined but metrics tracked partially Low: policy in implementation and programmes deliver positive data on OSH</p>
Human rights and community relations	High / Medium / Low	<ul style="list-style-type: none"> • Social Impact Assessment or SIA (including community demography and profile, impacts by community profiles i.e., social hierarchy, ethnic groups, socio-cultural and religious practices, skills profile and public services / resources, provisions for labour standards, equal wages, non-discrimination policy etc.) • CSR Policy and Programmes • Community engagement policy • Community Complaints Procedures • Community / NGO reports/complaints • Free, Prior, Informed Consent Policy • Police reports • Satellite images and geospatial data (i.e., Global Forest Watch) • SEA and Cumulative Effects Assessments 	Disbursement subject to effective mitigation	<p>Metrics for number of engagement programmes including consultation with vulnerable groups, number of legal cases/disputes; cases of community / stakeholders' opposition; complaints and resolution; instances of gender-Based violence and harassment (GBVH) in local communities; protests, social activism, law-suits or legal action by community; and negative media coverage etc.</p> <p>Level 1: Polar Analysis (Yes / No) Undertaken social impact assessment and defined a CSR policy, with community relations programmes</p> <p>Level 2: Qualitative (High / Medium / Low) High: no policy and/or assessments Medium: policy defined but partial assessment of human rights with some mitigation action Low: policy on CSR in implementation with community investments and assessments undertaken, with targets and action plan</p>

<p>Governance</p>	<p>High / Medium / Low</p>	<ul style="list-style-type: none"> • Anti-Corruption / Money Laundering Policy • Enterprise Risk Management Framework (with ESG Integration) • Statement of Commitment on Sustainability and Climate Change 	<p>Better Terms subject to effective governance mechanisms</p>	<p>Metrics for % of operations scanned for the risk of corruption and corrupt business practices; number of ESG risks identified and integrated into the ERM framework; policies and governance in place to monitor and manage incidences of corruption and corrupt practices (and their impacts), complaints, and resolutions; % of policies supported with management KPIs and targets etc.</p> <p>Level 1: Polar Analysis (Yes / No) Defined relevant policies, with due diligence in place to monitor and manage governance issues</p> <p>Level 2: Qualitative (High / Medium / Low) High: no policies and inadequate governance Medium: policy defined but enforcement is weak or partially effective Low: policies in implementation with regular audits on governance aspects</p>
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When assessing the risks, FIs may additionally review various cash flow projection variables such as the following:

- **Revenues:** assess forecast per lines of business to identify the key profit contributors the most at risk of the transition to a low-carbon economy.
- **Costs:** assess the impact of carbon tax on the operations and R&D expenses in more environmentally friendly products.
- **Cash flows:** assess costs of upgrading equipment/investment in energy efficient machinery.

Risk Mitigation

73. FIs should review the broad mitigation strategies of their customers in the context of their outcomes and how they will support the sector’s overarching ESG strategies. FIs should also refer to BNM’s Climate Change and Principle-based Taxonomy: Guiding Principle 4 on Remedial Measures to Transition for better alignment.

Table 7: Risk Mitigation & Remedial Measures

Metric/Measure	Risk Mitigation & Remedial Measures ³⁹
<p>Climate/ GHG emissions</p> <p>GHG emissions and reporting of Scope 1, Scope 2 and Scope 3 emissions in terms of carbon dioxide equivalent (CO₂e).⁴⁰</p>	<ul style="list-style-type: none"> • Have a science-based decarbonisation strategy to meet GHG reduction targets following a robust methodology such as the Sectoral Decarbonisation Approach⁴¹. • Use sector-scenarios from the IEA 2DS model to calculate a 2-degree compatible company intensity pathway, which can inform a strategy to reduce absolute emissions and emissions intensity. <p>Measures to support a science-based pathway can include:</p> <ul style="list-style-type: none"> • Invest in and transition to sustainable energy⁴² and low-carbon fuel portfolios • Improve operational efficiency and reduce emissions in upstream operations • Improve energy efficiency and other carbon intensity reduction • Define the carbon offsetting mechanism • Reduce GHG-intensive activities and deploy efficient technologies to reduce emissions e.g., carbon capture and storage technology • Reduce Scope 1 and 2 emissions by managing methane leaks, venting and flaring • Increase operational resilience through climate change adaptation, a process which involves identification of risks & vulnerabilities, planning, assessment & selection of options, implementation and monitoring & evaluation (IPIECA 2013⁴³) <p>Mitigation Strategies⁴⁴ for Scope 1 and Scope 2 can include</p> <ul style="list-style-type: none"> • Electrifying operations and incorporating renewables to fulfill power needs. • Adopting low or no emission fuels such as hydrogen, e-fuels/synthetic fuels, biofuels and ammonia • Improving logistics to reduce fuel consumption. For instance, invoking the principles of a sharing economy, some operators coordinate logistics, • including trucks, marine vessels and helicopters, to optimize transport times and volumes • Reducing routine flaring • Employing methane capture

³⁹ Illustrations Only. Not Comprehensive.

⁴⁰ CO₂e equivalent refers to all greenhouse gasses, including carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O), and the global warming potential (GWP) expressed in terms of carbon dioxide equivalent (CO₂e).

⁴¹ This approach allocates the remaining global 2 degrees carbon budget to different sectors, and within each sector companies can derive their science-based emission reduction targets based on their relative contribution to the total sector activity and their carbon intensity relative to the base year.

⁴² Covers both renewable energy and energy efficiency

⁴³ Addressing adaptation in the oil and gas industry, Climate Change, ipieca, 2013

⁴⁴ The 2030 Decarbonisation Challenge. The Path to the Future of Energy, Oil & Gas, Deloitte, 2020

	<ul style="list-style-type: none"> • Optimising production and reservoir management through the use of digital tools such as IoT sensors, digital twins, and virtual reality to model scenarios, monitor operations, track emissions and energy usage and proactively maintain equipment • Producing lower-emission products moving from one hydrocarbon to another (for example, from coal to natural gas) or creating another product (such as biofuels or syngas) • Increasing reuse or employing additive manufacturing to decrease waste and increase supply-chain flexibility <p>Other considerations</p> <ul style="list-style-type: none"> • Align with the “G20 Principles for Quality Infrastructure Investment” Principle 4: “Building Resilience against Natural Disasters and Other Risks” (including human-made risks) • Factor-in Sound disaster risk management at design stage. A comprehensive disaster risk management plan should influence the design of the project, the ongoing maintenance and consider the re-establishment of essential services • Substitute clinker use in cement mix with alternatives materials suited to Malaysia’s context such as fly ash and steel slag • Use renewable energy sources in the metals industry production processes • Switch to feedstock to lower carbon solutions such as methanol, pyrolysis of waste materials such as plastics, and use of zero carbon hydrogen to substitute natural gas in the production of ammonia and methanol • Improve industrial gas handling and machine efficiency to reduce usage of gas during the cleaning and etching process, and industry-wide increase in wafer sizes to increase output of wafers, reducing the amount of gas used for equivalent amount of substrate produced
Water	<ul style="list-style-type: none"> • Optimise product conveying systems to reduce contact of raw material and product with water, for example by using dry instead of wet conveying systems. Optimise process line operations to avoid spills of raw materials and water, reducing the need to wastewater treatment and associated energy consumption • Use dry methods, such as air classifiers, magnetic separators and vibration over sieving and screening devices, for the primary cleaning of robust raw materials with low moisture content • Use, where feasible, a continuous / batch steam or a dry caustic process for peeling activities, or alternatively, consider dry caustic peeling • Use taps with automatic shut-off valves and use high water pressure and optimised nozzles • Use counter-current wash techniques for primary wash of raw materials; • Implement dry clean of equipment with scraper or broom before cleaning with water • Minimise wet transport (pumping) of waste • Reduce water consumption through recycling process streams • Adopt of current washing (e.g., reuse the least contaminated water from the final wash for the next-to-last wash)
Pollution & Waste	<ul style="list-style-type: none"> • Separate and collect product waste, including rinse waters and by-products, to facilitate recycling or further processing for subsequent use, sale, or disposal

<p>Waste management, including wastewater release and management⁴⁵</p>	<ul style="list-style-type: none"> • Dewater and dispose residuals in designated hazardous waste landfills • Use non-contact cooling water systems, or a recirculation route with the use of evaporative cooling towers • Ensure wastewater treatment by coagulation / flocculation / precipitation using lime or sodium hydroxide, pH correction / neutralization, and activated carbons • Install grids to reduce or avoid the introduction of solid materials into the wastewater drainage system • Separate process and foul drains in process areas and should discharge directly to a treatment plant and / or municipal sewerage system • Install pipes and tanks that are self-draining, with appropriate procedures for product discharge prior to, or integral with, cleaning procedures • Adopt best-practice methods for facility cleaning, which may involve manual or automated Clean In Place (CIP) systems, using approved chemicals and/or detergents with minimal environmental impact and compatibility with subsequent wastewater treatment processes. <ul style="list-style-type: none"> ○ Biodegradable plasticizers usage where possible ○ Product or equipment modification ○ Raw materials substitution • Employ recycling and appropriate disposal of hazardous waste improve efficiency and minimise environmental impacts • Use sterilization or chemical treatment to inactivate potentially pathogenic waste from biotechnology manufacturing before final disposal. • Ensure safe storage, transport, and use of hazardous materials • Maximise recycling of by-products and waste back to the process (e.g., in smelting and refining activities) • Minimise and avoid the use of hazardous materials • Ensure proper management of transportation, handling, treatment and disposal of hazardous waste • Consult with local authorities on emissions, discharges, and solid waste disposal in regard to local communities.
<p>Resource Use and Efficiency</p> <p>Resource efficiency refers to sustainable use of natural resources such as land, minerals, water, fuels, timber, fertile soil, clean air and biodiversity etc. Common use in overall industry context, is use of fuel (energy) and water.</p> <p>Refer to Appendix V: Essential Readings for the Pathways for Sustainable Consumption and Production (SCP) in Malaysia; Green</p>	<ul style="list-style-type: none"> • Conduct a Life-Cycle Assessment • Recognise national roadmaps and policies for resource use and efficiency, and address waste pollution • Prepare waste management roadmaps and concrete actions at organisational and sectoral levels. • Minimise resources and materials use • Use highly recyclable materials in the products • Integrate sustainable sourcing and use of resources throughout the full lifecycle to the extent applicable, and recycling/up-cycling or re-using 100% of waste generated • Adopt a closed-loop approach to divert waste from landfills by promoting recycling and reuse of materials and in other instances, encourage responsible disposal of waste from operations. • Increase the use of recycled content in products and move the value chain to recovery and recycling. • Invest in end-of-life management for products and packaging such as take-backs of plastic waste, or indirect action towards recovery such as contribution to EPR schemes

⁴⁵ Most pollutants to water deriving from the production of iron and steel can be removed by filtration.

<p>Technology Master Plan and Categorisation System for the Circular Economy (Circular Economy Principles and R Hierarchy)</p>	<ul style="list-style-type: none"> • Invest into waste management systems across their geographic footprint and support of pilots or R&D for new technologies, including EPR schemes • Mandate disclosures and reporting of types and volume of materials use, footprint, which can be used to build baselines and benchmarks. • Enhance energy supply through usage of energy efficient equipment • Adopt innovative technology* that could reduce energy or water use in production process • Invest in technology* to recover waste energy or recycle water and harvest rainwater • Use water efficient equipment at factory facilities e.g., water taps which include basin tap, sink tap, shower tap and ablution tap, water closet, urinal equipment • Promote behavioural changes in water and energy usage at facilities provided for employees e.g., washroom, common area – prayer room, pantry/cafeteria etc. • Monitor and benchmark use of the resources on regular basis e.g., adopt standards such as ISO50001 for Energy Management and ISO14000 for Environmental Management Systems • Adopt green procurement practices for timber, prioritising FSC certified products
<p>Labour Rights and Working Conditions</p> <p>Policies on labour and workers' accommodations (if applicable)</p>	<ul style="list-style-type: none"> • Follow international standards and guidelines (e.g., ILO) • Promote and strengthen freedom of association and the right to collective bargaining • Introduce measures to allow workers to present their views to management • Educate vulnerable workers about the laws limiting their freedom of expression so they can better protect themselves. • Conduct due diligence on employment and recruitment agencies supplying workers • Adopt non-discriminatory company policies and raise awareness of discrimination • Adopt equal employment policies and safeguards, and create a work environment that supports equality and respect, non-discrimination and anti-harassment, and promotes gender equity in all employment-related decisions e.g., Gender-based violence and harassment (GBVH) policy • Drive equal opportunities in the company's workforce and procurement practices. • Champion efforts to achieve inclusive staff profile, with women and people from the affected groups in positions of responsibility. This should also overcome barriers for women and affected groups in terms of skill levels, mobility, and social norms, access or control over resources • Ensure that employees and contracted workers enjoy equal treatment and labour rights, and that grievance systems are known, accessible and effective.
<p>Occupational Safety and Health (OSH)</p>	<ul style="list-style-type: none"> • Institutionalise Occupational Health and Safety Monitoring systems • Provide workers with training in the proper use of equipment (including the proper use of machine safety devices) and personal protective equipment (PPE), such as hearing protection • Ensure physical segregation of work and personal facilities to maintain worker personal hygiene

	<ul style="list-style-type: none"> • Provide continuous monitoring in areas where sudden and unexpected hazards may occur • Allow sufficient time for acclimatisation to hot environments, provide work breaks in cool areas and adequate supply for frequent drinking for hydration purposes • Place clear signages in all transport corridors and working areas • Schedule regular maintenance and repair of lifting, electrical, grinding, cutting and transport equipment
<p>Human Rights and Community Relations</p>	<ul style="list-style-type: none"> • Put in place community health and communicable disease management: health and safety plans, vaccinations and awareness raising on communicable diseases, and baseline health assessments, as necessary • Prioritise job opportunities available for impacted community • Define processes for management of community tensions, grievances and concerns through transparent formal grievance mechanism • Undertake consultations at various stages of project cycle, especially with marginalised groups. In addition to mixed-sex consultations, offer men and women separate consultations • Select sites where impact on local communities can be avoided altogether or minimised • Ensure community relations are managed through the principles of Free, Prior, Informed Consent, and follows international frameworks such as the United Nations Declaration on the Rights of Indigenous Peoples • Ensure compensation takes into account both material and non-material assets • Create co-benefits and employment generation for local communities • Ensure stakeholder consultation throughout the project lifecycle and generation of meaningful employment • Make sure there are no cases of legal and community land ownership contestations/territorial disputes • Undertake comprehensive life cycle assessment is conducted, including the cumulative impacts of multiple manufacturing systems on ecosystems and communities over their entire lifespans, to avoid “locking in” manufacturing projects and systems with various adverse effects. • -Establish grievance mechanisms for all stakeholders. • -Regularise monitoring of manufacturing performance and impacts based on key performance indicators and the promotion of data sharing with all stakeholders.
<p>Governance</p>	<ul style="list-style-type: none"> • Ensure the fulfilment of statutory and regulatory requirements, including regular third-party audits certifications • Ensure a strong anti-corruption and whistle-blower policy is enforced • Ensure manufacturing development is aligned with national policies • Ensure manufacturing development is aligned with global sustainable development agendas (i.e., UN SDGs)

74. In assessing the risk mitigation strategies, FIs should include clear and comprehensive terms and conditions in the contractual agreements with the counterparties (applicable to new or renewal contracts) which require the Manufacturing operators to adhere the following steps in managing various risks and their impacts.
- 74.1 Identify applicable laws/ regulations/ standards/ certification that are related to the manufacturing industry in Malaysia e.g., ISO14067 Product Carbon Footprint Certification Scheme and other applicable certification(s) such as ISO 14001 SIRIM Eco-Labeling Scheme if applicable and require the counterparties to be in compliance with Act 127: Environmental Quality Act (Prescribed Activities) (Environmental Impact Assessment) Order 2000 and the Regulations thereunder.
- 74.2 Identify, encourage and/or require specific commitments from counterparties to strive towards adopting local/international regulatory standards and best green manufacturing practices, e.g., MyHijau certification for the products relating to sustainable products.
- 74.3 Identify and require specific commitments from the counterparties including commitment to adopt green manufacturing practices and a time-bound action plan to comply with mandatory Act 127: Environmental Quality Act (Prescribed Activities) (Environmental Impact Assessment) Order 2000; relevant local/international certifications; and/or best management practices relating to sustainable construction (including environmental management techniques for water use, energy efficiency and waste management).
- 74.4 Identify event(s) that would constitute impact-based non-compliance/breach, e.g., failure to comply with time bound plan to adopt best manufacturing practices.
75. In addition to the above terms, FIs should consider including the following expectations on their counterparties or encourage counterparties to perform the following to improve positive impact and/or mitigate negative impact (based on the appetite and their maturity or stage of ESG adoption and implementation):
- 75.1 Benchmark with local and international frameworks such as the TCFD recommendations and commit to setting science-based targets to manage GHG emissions.
- 75.2 Assess energy efficiency practices adopted by the counterparty based on the guidance provided under the VBIAF Sectoral Guide on Energy Efficiency.
- 75.3 Impose adequate contractual penalties and warranties with the counterparties to mitigate the risk of not adhering to the time-bound action plan to comply with mandatory Act 127: Environmental Quality Act (Prescribed Activities) (Environmental Impact Assessment) Order 2000. as well as ad-hoc instances of breaches of acceptable environmental and social practices (i.e., waste spills, human rights violations, etc.)
- 75.4 Offer income protection for smallholders and workers i.e., protection against loss of income due to illness or injury.
- 75.5 Secure protection against losses associated with an existing or new pollution event and contractually embedded green remediation supplementary payment. Green remediation includes the increase in costs for following standards, products, methods and processes for improving the environment, increasing energy efficiency and enhancing safety and property protection. It also includes the costs attributable to apply green techniques which operate to minimise waste generation, reduce energy consumption, or conserve natural resources in the execution of a clean-up.

ON-BOARDING CHECKLIST

76. FIs should develop an appropriate customer on-boarding checklist based on the key impact categories and potential risk transmission channels identified above. The following table suggests the information required for the initial on-boarding assessment to determine transaction-level risk. Depending on the materiality and the nature of the financing, some of the requirements may not be applicable. The list below is not exhaustive and is for illustration purposes only. FIs should build on this template to ensure all necessary aspects are covered for key risk categories.

Table 8: Template for Customer On-Boarding Checklist

1. Customer Details	Details
Group/Project Name:	
Customer(s) Name	
Country where headquartered	
If a project, country of operation	
Financial Services Proposed/Granted	
Date Customer was supplied with a copy of Bank's Manufacturing Policy (public version)	
2. Scope	Details (Yes/No, with summary details)
Procurement of raw materials necessary equipment and facilities for the manufacturing operations/production.	
Operations i.e., actual operations and production of the raw materials into the finished product	
Output or the finished product for sale and distribution as well as end-of-life management	
3. Risk Assessment	Details (Yes/No, with summary details)
Environment	
<ul style="list-style-type: none"> EIA and SIA where applicable has been undertaken Climate change vulnerability assessment conducted and adaptation strategies have been devised Aligned disclosures to recommendations of TCFD or other science-based targets made publicly Locally relevant and global best practices and tools adopted 	
Climate/ GHG emissions <ul style="list-style-type: none"> Climate mitigation and/ or GHG management plan is in place, with annual GHG emissions report (specific to project/s and / or the organisation) Climate adaptation strategies have been devised (with commitment to align to 1.5C or other science-based targets) GHG emission reduction targets and decarbonisation strategy defined Technological, financial and human resources of company to achieve climate targets have been assessed 	

<p>Water</p> <ul style="list-style-type: none"> • Water management policy exists with clear indication of the source of water, usage monitor, pollution etc. • Riparian management policy and mitigation plans are in place • Water source vulnerable assessment has been completed 	
<p>Pollution and Waste</p> <ul style="list-style-type: none"> • Waste/ effluents management plan (from JAS) exists • Necessary Permit of purchasing and storage of diesel • On-site assessment – waste/ effluent/ chemical storage, handling and disposal • Air quality measurement and management 	
<p>Resource Use and Efficiency</p> <ul style="list-style-type: none"> • Energy Management System (EnMS) implemented to improve energy consumption • Electrical Energy Regulations 2008 (EMEER 2008) adhered to for energy efficiency • Energy efficiency policy and/or strategy 	
SCORE	
Social	
<p>Labour rights and working conditions</p> <ul style="list-style-type: none"> - ILO and local labour regulations observed - Policies on migrant and vulnerable workers defined - Labour management includes equal opportunity, welfare and wellbeing policies, anti-discrimination and gender equality policy, collective bargaining agreements, fair contracts, provision on minimum wages, training, grievance/ complaints mechanism - Desktop/ On-site assessments conducted on working conditions, living arrangements etc. - Grievances handling and management information is published publicly 	
<p>Occupational safety and health (OSH)</p> <ul style="list-style-type: none"> - OSH management policy defined - Training and awareness programmes in place - OSH performance / audit reports published - Performance monitoring and internal / external audit reports are published - Certification of Fitness for machinery in plant (JKKP) obtained - Sufficient protection i.e., adequate insurance coverage, compensation schemes offered to workers at risk - Emergency response plan is in place 	

<p>Human rights and community relations</p> <ul style="list-style-type: none"> - Stakeholder management policy institutionalised and transparent grievance/ complaints mechanism - Engagement programmes including awareness, supporting community events etc. - Human rights policy framed - Community relations managed in line with international frameworks, covenants and best practices (i.e., United Nations Declaration on the Rights of Indigenous Peoples) - Effective, transparent and non-coercive consultation has been done with experts, civil society, regulators and local community 	
SCORE	
Governance	
<p>Governance mechanism</p> <ul style="list-style-type: none"> - Sustainability commitment, strategy and relevant ESG policies and risk management framework including monitoring mechanism, transparency and disclosures publicly made available. - If no, a credible (time-bound) plan/s to mitigate ESG issues is made available - Industry standards and/ or relevant certifications obtained - Outstanding legal claims relating to the customer's environmental and social performance disclosed - SIRIM's MS 1514 Good Manufacturing Practices (GMP), esp. for F&B implemented - Issues reported (i.e., media backlash, protest by community, etc.) and how they were resolved 	
SCORE	
TOTAL SCORE	
OVERALL RISK CATEGORY	

Note: FIs should update the above assessment at least annually (e.g., by mandating the customer to provide at least an annual report with clear plans / programmes / policies implemented and their outcomes, with sufficient data, evidence, stakeholder statements to substantiate the claims) and/or when renewing/reviewing financing facility / lending / investment.

77. FIs should determine their Scoring Criteria and Methodology and maintain certain degree of transparency with the businesses under assessment. The scoring rules can be based on various standards set by leading market indices and/or sustainability frameworks. For instance, the FTSE4Good ESG scoring by Bursa Malaysia as illustrated below (Refer to Appendix V: Essential Readings).

Exposure		Score	
3	High	0	No Disclosure
2	Medium	1	
1	Low	2	
0	Negligible / NA	3	Good Practice
		4	
		5	Best Practice

78. For optimum decision making, FIs should determine a decision-making rule based on the aggregate risk score/ level of the impact-based metrics/ indicators above and their respective risk appetite statement. The table below illustrates a description of decision-making rules specific to this sector. In addition, FIs should also refer to BNM’s Climate Change and Principle-based Taxonomy: Guiding Principle 3 & 4 - Do No Harm to the Environment & Remedial Measures to Transition respectively for better alignment.

Table 9: Decision-Making Rules Description

Categories	Description	Score
High Risk	Scores “High” for the majority of key impact categories/ themes but has satisfactory mitigation strategy. Approval should be subject to strict compliance conditions/ covenants.	
Medium Risk	Scores “Medium” or “Low” in the majority and exhibit evidence of effective mitigation strategy. Approval can be subject to standard compliance conditions/ covenants.	
Low Risk	Scores “Low” for all impact categories and exhibit evidence of effective mitigation strategy. Approval can be subject to standard compliance conditions/ covenants.	

79. The scoring can also depend on customers' i) Intent and ii) Action. The intent suggests customers inclination to not just meeting minimum regulatory requirements, but go beyond to understand and manage ESG impacts along their value chain. An intent should always be supported by an action plan, which could be implemented over short, medium, or long-term depending on the FI facility that's being considered. Whereas, action refers to the demonstrated efforts in terms of operating to a more stringent set of international standards, adopting global sustainability frameworks to effectively not just manage but deliver positive ESG impacts. In either of the cases, when granting bank facilities, FIs should encourage customers to go beyond minimum expectations required to operate legally. Where possible, FIs should introduce standards which will make a tangible difference to the type of business that they support. The FIs should engage with customers, where appropriate, and support them in moving towards global best practices, which is also one of the most significant contributions FIs can make to sustainable development.
80. Both the intent and action can be assessed by FIs for their specific risk control approaches, which can go two ways. First through avoidance, where FIs' customers may take a precautionary approach by not contributing to any negative ESG impacts, e.g., by proactively deploying greener and cleaner technologies or by evolving to adopt RE business models etc. In such cases, it is necessary for the FIs to take a long-term view of their business viability as well as financial prospects and credit position especially in cases where new investments in technology and/or business mobilisation plans are impending. Second by elimination - a method where FIs' customers may identify and eliminate the root causes of negative ESG impacts, and in the long-run, manage to reduce the probabilities of occurrence or recurrence. In such cases, FIs should review the effectiveness of the measures put in place, which should be validated by data evidencing elimination over a significant period of time.
81. Companies are expected to use globally recognised and locally prescribed (by regulators) frameworks to disclose material ESG matters / issues in order to inform investors and the market about the risks and opportunities, and to increase transparency of both financial and non-financial impacts. Refer to Appendix V: Essential Readings for recommended global frameworks.

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Exclusion List

82. FIs should develop an exclusion list which would serve as a baseline risk appetite. Examples of general activities that should be avoided are provided in Table 6 of VBIAF pp. 30-31. Specific activities that should be avoided in this sector include the following (based on IFC as well as selected international and regional banks⁴⁶ exclusion list).
83. The following criteria serves as a quick reference for FIs to filter or exclude customers with a poor ESG performance track record. A general rule of thumb can be applied here – Activities that are in breach of national and international laws, with irreversible ESG impacts can be part of the exclusion or prohibited list. FIs should also refer to BNM’s Climate Change and Principle-based Taxonomy: Guiding Principle 5 on Prohibited Activities for better alignment.

Illustration: Sample Criteria to Exclude Customers with Poor ESG Performance

- Fatalities, where customers with five or more in either of the last two years, or a deteriorating trend over the last two years.
- Material accidents, spills or pollution - Material refers to occurrences serious enough to cause a controversy at a national level or reputational damage to the customer and, potentially, to FI
- Material negative impacts on people or the environment not specified above (for example, impacts on land rights or on protected forests from pylons or pipelines)
- Not meeting regulatory standards in respect of workers, communities or the environment. This could typically relate to the suspension of an important operating licence or a fine which is substantial in either absolute size (above USD 1 million or Malaysia Ringgit equivalent) or by reference to the size and resources of the customers

Table 10: Prohibited Activities

No	Type of Activities
1	Manufacturing of any product or activity deemed illegal under a Country’s laws or regulations, or international conventions and agreements, or subject to international bans.
2	Manufacturing activities involving harmful or exploitative forms of forced labour or harmful child labour: <ol style="list-style-type: none"> a. Forced labour means all work or services, not voluntarily performed, that is extracted from an individual under threat of force or penalty. b. Harmful child labour means the employment of children that is economically exploitive, or is likely to be hazardous to, or to interfere with, the child’s education, or to be harmful to the child’s health, or physical, mental, spiritual, moral, or social development.
3	Manufacturing activities or storage or movement of weapons of mass destruction (e.g., nuclear, biological or chemical) and firearms, except for transactions that

⁴⁶ This includes BBVA and Santander

	involve supply of arms and munitions to the Malaysian Ministry of Defence and law enforcement agencies.
4	<p>Manufacturing of radioactive materials, including nuclear power generation and related services</p> <ul style="list-style-type: none"> • <i>However, exceptions may be taken e.g., production of medical equipment, quality control (measurement) equipment</i>
5	<p>Manufacturing of unbonded asbestos fibers</p> <ul style="list-style-type: none"> • <i>However, exceptions may be taken e.g., for purchase and use of bonded asbestos cement sheet where the asbestos content is less than 20%</i>
6	Manufacturing activities involving the usage of plastic microbeads in relation to personal care products such as cosmetics and cleaning agents.
7	Manufacturing activities that produce high Chlorofluorocarbons (CFCs), Hydrochlorofluorocarbons (HCFCs) and Hydrofluorocarbons (HFCs) which destroys the earth's protective ozone layer.
8	Production in tobacco, including plantations, manufacturing and wholesale distribution. However, exceptions may be taken e.g., for production / use for medicinal purposes.
9	<p>Production of alcohol, including breweries for consumption and sale.</p> <ul style="list-style-type: none"> • <i>However, exceptions may be taken e.g., production as an input for medicines and medical products, cosmetics etc.</i>
10	Activities that could damage any World, National or United Nations Educational, Scientific and Cultural Organisation heritage sites.
11	Other activities that have a significant adverse impact on the environment and/or the surrounding community AND is not in compliance with international and/or local standards, regulations and laws.
12	Non-halal business activities

PERFORMANCE MANAGEMENT

84. In the event where the client does not comply with the conditions described in the FI's sustainability policies, ESG conditions may be added requiring clients to commit to a time-bound Action Plan describing how the clients intend to improve the ESG practices in the future, including specific goals and credible timescales. This aims to address ESG risks that have been identified as unacceptable and bring the client into alignment with the FIs' ESG criteria as part of the provision of financial services provided.
85. Contractual clauses regarding compliance with FI's sustainability policies and agreed time-bound action plan may be inserted into the relevant loan documentation, contracts or letters for prospects.
86. FIs should undertake regular client monitoring and reviews to ensure client's compliance to FIs' ESG policies and monitor the progress of the agreed time bound Action Plan, if any. This will also help FIs to understand the material issues their clients face periodically and help them identify and resolve problems with a view to positively influence their sustainability performance and minimise risks, and can include evaluating clients on an ad-hoc basis, triggered by a material social or environmental incident/s, adverse media/NGO coverage, fines and penalties, etc.
87. The monitoring and review frequency may be adjusted according to clients' ESG risk level. For instance, FIs can set to review and re-assess low, medium, and high-risk clients every five years, three years, or annually respectively.
88. FIs should establish appropriate performance tracking and reporting mechanism to adequately monitor the impact-based performance, based on the impact measures/ indicators established through a time-bound action plan.
89. An Action Plan can be mandated to manufacturing players seeking finance at two stages – either at the point of credit assessment, whereby performance status on specific ESG metrics can be requested and reviewed outrightly OR at the point of sanction of financing facility with conditions to be fulfilled in different areas of ESG that may be material and relevant to the type and quantum of financing.
90. Performance status or progress on the Action Plan should be requested periodically – quarterly or half-year basis, so that necessary support may be extended by the FIs to help manage and/or mitigate ESG risks or accelerate ESG integration / implementation.
91. Where the performance is not as expected, FIs, depending on their capacity, can offer training programmes, skills and knowledge transfer, as well as any other support that may help Manufacturing players to improve on their implementation of the Action Plan.

92. An Action Plan (at the minimum) should include the following components:

Illustration: Sample Action Plan Components

- A summary report on the assessment of ESG risks / exposure, dual materiality and the priority areas of focus and improvement
- A clear statement on the type and quantum of financing that has been approved either based on the current ESG performance or with specific conditions to improve ESG performance
- A definite and reasonable period of tracking of ESG performance improvements, which may be determined by the FIs, depending on the size of business as well as the type of financing and the ESG risk exposure. FIs can draw different timelines for different risk categories. However, this may also be subject to the ability as well as the maturity of businesses
- A globally established and locally relevant set of material ESG metrics / thresholds / performance targets and outcomes that will be tracked or monitored over the pre-determined time. (Refer to Point 60, Table 2 as well as Appendix V for examples of ESG metrics based on various frameworks and standards)
- An absolute statement on the incentives as well as disincentives to motivate O&G operators to invest time and resources to improve ESG performance
- An expected reporting format, frequency, and channels to ensure the ESG performance is transparent to all key stakeholders of business

93. Additionally, detailed transition plan⁴⁷ or strategy should be drawn based on available technology and policy levers. The transition plan should be consistent with broader economy- or sector-wide science-based pathways to a low-carbon economy.

94. A transition plan (at the minimum) should include the following:

Illustration: Sample Transition Plan Components

- The organisation's current capabilities, technologies, pathways, and financial plan
- The risks that the organisation faces from a transition to a low-carbon economy
- The assumptions, significant limitations, constraints, and uncertainties in the transition plan, such as challenges regarding GHG emissions reductions of hard-to-decarbonise sectors
- The impact on businesses, strategy, and financial planning from a low-carbon transition
- The specific actions and activities to support transition, including GHG emissions reduction targets and planned changes to businesses and strategy

95. FIs should look beyond compliance, policy statements and check-list approaches and assess qualitative / in-depth evidence on positive or negative ESG exposure. This is critical especially when dealing with large businesses, with significant ESG footprint and who may be looking for long-term and high-value financing solutions.

⁴⁷ TCFD Guidance on Metrics, Targets, and Transition Plans, October 2021

STAKEHOLDER INCLUSION & VALIDATION

96. FIs should verify/validate the ESG strategies deployed by the manufacturers and their outcomes/performance by mandating evidence in the form of policies, implementation programmes, corrective measures, stakeholder feedback and endorsements, internal or external audits, standards adopted, industry rankings and performance improvement on ESG Market Indices⁴⁸ etc.
97. FIs should request the manufacturers to include information on stakeholder participation, materiality, and stakeholder feedback in their performance reports. In other words, comprehensive information on key capacity building/engagement initiatives and feedback/ grievances from wider stakeholders can help validate the performance of the manufacturers, including their management of material ESG risks and their impacts on stakeholders.
98. The evidence in relation to stakeholders that FIs can assess include the following:

Illustration: Sample Stakeholder Assessment Criteria

- Quality of relationships with key stakeholders affected by direct ESG impacts
- Nature/ types of feedback/ grievances from the stakeholders affected
- Type and quality of engagement with stakeholders to improve ESG performance
- Perceptions of stakeholders on both negative and positive impacts e.g., improved policies and procedures, improved public sentiment/ branding, reduction in GHG emissions

99. FIs also should facilitate appropriate nurturing programmes for its stakeholders and some examples are as below:

Illustration: Sample Nurturing Programmes

Customers

- Collaborate with relevant government agencies/ NGOs to provide training/ awareness programme and advisory services on green manufacturing practices
- Conduct regular workshop for FIs' customers to share experience and knowledge with the support of relevant external parties (e.g., GreenTech representatives, and Malaysian Green Technology and Climate Change Centre (MGTC) amongst others
- Offer green financial products to incentivise clients to improve on their sustainability practices (e.g., reduced margin based on predetermined target relating to adopting green manufacturing practices or best manufacturing practices)
- Setting aside part of the total financing (at preferential rates) to the client for certification

Community

- Collaborate with relevant government agencies/ NGOs to conduct awareness/ education programmes on green manufacturing practices (e.g., Green Technology, SIRIM)
- Promote awareness on green finance alternatives to the public through roadshows and social media platforms

⁴⁸ The use of ESG Market Indices should be treated with care as they pose a number of issues. Rating services are subjective and susceptible to issues such as potential biases in the methodology and inconsistencies across methodologies, affecting comparability of data. Furthermore, these ratings have the potential to reflect only the information available about a company rather than a companies' true ESG performance.

100. FIs can establish exceptions to the remedies and exit procedure in accordance to the FIs sustainability guiding principles as well as the quality of their business / client relationships and most importantly, FIs' own approach and strategy to manage ESG performance of their respective customers.
101. Overall, FIs should engage with the disclosing companies to support them to effectively communicate the value of their action. They can also support the investor community by highlighting the financial materiality of ESG risks and advise portfolio companies on how to engage with the issue.
102. FIs can play an important role of evaluating the impact and make it comparable. To motivate action, FIs should drive home the critical need to address social and environmental challenges mainly because it makes business sense to manage the risks and optimise the opportunities at the same time.

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REMEDIAL MEASURES

103. FIs should establish remedial measures for the identified high impact-based risk manufacturing players. FIs should also refer to BNM's Climate Change and Principle-based Taxonomy: Guiding Principle 4 - Remedial Measures to Transition for better alignment.
104. FIs can clearly distinguish remedial measures as associated with 1) rectification plans (where immediate or time-bound and non-negotiable corrective measures can minimise negative ESG impact) and 2) performance plans (where long-term measures can help improve net positive impact of the business). The idea is to bring ESG risk exposure to a level that is acceptable to the FIs.
105. FIs can also offer two sets of remedial measures – steps that can be taken by the manufacturing players and advisory/support that can be offered by the FIs, depending on their capacity and the initial push to manage ESG risk exposure.
106. For instance, as part of its remedial measures, FIs can facilitate appropriate nurturing programmes for its stakeholders and some examples are stated under point 87 above.
107. FIs should establish clear escalation procedures as indicated below:

Illustration: Sample Criteria to Trigger Escalations

- Complex or controversial cases, these cases should be escalated to a higher committee such as Group Sustainability Committee for further deliberation
- A maximum term within which improvements must take place to address non-compliance and conduct the rectification plan for remedies. The maximum term will be determined on a case-by-case basis. In certain cases, an extension of this timeline is possible – for instance when substantial improvements have been made and full compliance is within reach
- Penalties e.g., increase/ step-up pricing, temporarily stop availability of revolving/ trade finance facility, no additional facility etc.
- Event of default e.g., continuous breach/ repeated breach, certification withdrawn, ESG controversies, stakeholders' activism etc.
- Exit procedure, although an option of last resort, can be an outcome of the process if the clients are not meeting a satisfactory progress level. This is done by taking into account existing contractual agreements e.g., action to be taken such as cancel undisbursed financing amount, recall financing and terminate relationship (negative list) etc.

108. FIs can establish exceptions to the remedies and exit procedure in accordance to the FIs sustainability guiding principles as well as the quality of their business / client relationships and most importantly, FIs' own approach and strategy to manage ESG performance of their respective customers.

TECHNICAL APPENDICES & REFERENCES

APPENDIX I: POLICIES & INITIATIVES AND THEIR KEY MANDATES

Policy/ Regulation/ Programme	In Effect Year*	Scope/Objective
National Policy on Industry 4.0 (Industry4WRD)	2018 - 2025	Provides a concerted and comprehensive transformation agenda for the manufacturing sector and its related services.
Green Technology Masterplan	2017 - 2030	Creates a framework to facilitate the mainstreaming of green technology into the planned developments, with a focus on the four pillars set in the National Green Technology Policy (NGTP) i.e., energy, environment, economy and social.
National Biotechnology Policy (NBP)	2005	To further develop three economic sectors namely agriculture, healthcare and industrial manufacturing, as well as to support the growth of an enabling eco-system throughout the scientific, academic and business communities in the country.
Manufacturing Plus-plus strategy	1996 - 2005	An integrated approach of moving up the value chain , from the lower end towards higher value-added activities such as research and development (R&D), product design, and distribution and marketing.
Occupational Safety and Health Act (1994) (Act 514)	1994	To make further provisions for securing the safety, health and welfare of persons at work, for protecting others against risks to safety or health in connection with the activities of persons at work, to establish the National Council for Occupational Safety and Health, and for matters connected therewith.
Industrial Master Plan	2006 – 2020 (IMP3) 1996 – 2005 (IMP2) 1986 – 1995 (IMP1)	To further broaden the scope by including services and featuring functional targets such as SMEs, HRD, technology, logistics, marketing, and so on. To broaden manufacturing capability through the strategies of cluster-based industrial development and manufacturing plus-plus. Laid the foundation of manufacturing industries and promoted the processing of natural resources instead of exporting them in raw form.
Promotion of Investments Act (1986)	1986	To make provision for promoting by way of relief from income tax the establishment and development in Malaysia of industrial, agricultural and other commercial enterprises, for the promotion of exports and for incidental and related purposes.

Look East Policy	2020 (2.0)	Facilitating access to Japanese capital through “samurai” bonds and providing Malaysia with investment, skilled labour and technologies from Japan.
	1981 (1.0)	To emulate the success of foreign nations, focus on Japan, South Korea and Taiwan as well. Learning the good values of the East, particularly their work ethics and their technological skills .
Heavy Industries Corporation of Malaysia (HICOM)	1980	A public sector company to go into partnership with foreign companies in setting up heavy industries which expected to strengthen the foundation of the manufacturing sector.
Industrial Co-ordination Act (1975)	1975	To provide for the co-ordination and orderly development of manufacturing activities in Malaysia, for the establishment of an Industrial Advisory Council and for other matters connected therewith or incidental thereto.
New Economic Policy (NEP)	1971 - 1990	To erode poverty and create more employment opportunities for citizens by expanding the manufacturing sector.
Factories and Machinery Act (1967)	1967	To provide for the control of factories with respect to matters relating to the safety, health and welfare of person therein, the registration and inspection of machinery and for matters connected therewith.
Malaysian Investment Development Authority (MIDA)	1967	Assists companies which intend to invest in the manufacturing and services sectors, as well as facilitates the implementation of their projects.
Malaysian Industrial Development Finance Berhad (MIDF)	1960	To oversee and drive investment into the manufacturing and services sectors in Malaysia.

**As at Date of Publication*

APPENDIX II: CURRENT PROGRAMMES AND INITIATIVES BY THE GOVERNMENT OF MALAYSIA (Limited to selected programmes for Halal & Green Manufacturing)

Malaysian Investment Development Authority - MIDA	
Incentives for Production of Halal Food	<p>To encourage new investments in halal food production and to increase the use of modern and state-of-the-art machinery and equipment in producing high quality halal food that comply with the international standards, companies which invest in halal food production and have already obtained halal certification from JAKIM in compliance with MS 1500:2004, are eligible for the Investment Tax Allowance (ITA) of 100% of qualifying capital expenditure incurred within a period of five years.</p> <p>The allowance can be set-off against 100% of statutory income in the year of assessment. Any unutilised allowance can be carried forward to subsequent years until the whole amount has been fully utilised.</p>
Halal Development Corporation Berhad (HDC)	
Incentives for Halal Park Operators	<p>To promote the attractiveness of the Halal Parks, halal park operators are eligible for the following incentives:</p> <p>i) Pioneer Status with income tax exemption of 100% of the statutory income for a period of ten years. Unabsorbed capital allowances incurred during the pioneer period can be carried forward and deducted from the post pioneer income of the company. Accumulated losses incurred during the pioneer period can be carried forward and deducted from the post pioneer income of the company for a period of seven consecutive years; OR</p> <p>ii) Investment Tax Allowance of 100% on the qualifying capital expenditure incurred within five years. The allowance can be offset against 100% of the statutory income for each year of assessment. Any unutilised allowances can be carried forward to subsequent years until they are fully utilised.</p>
Incentives for Halal Parks	<p>To support companies proposing to undertake projects in the designated Halal Parks are eligible for:</p> <p>i) Investment Tax Allowance of 100% on the qualifying capital expenditure incurred within a period of ten years. This allowance can be offset against 100% of the statutory income for each year of assessment. Any unutilised allowances can be carried forward to subsequent years until they are fully utilised; OR</p> <p>ii) Exemption from import duty and sales tax on raw materials used for the development and production of halal promoted products; and</p> <p>iii) Double deduction on expenses incurred in obtaining international quality standards such as HACCP, GMP, Codex Alimentarius (food standard guidelines of FAO & WHO), Sanitation Standard Operating Procedure and regulations for compliance for export markets such as Food Traceability from farm to fork.</p> <p>The Halal industry players must be involved in one or more of the industry sectors: Specialty processed food; Pharmaceuticals, cosmetics, and personal care products; Livestock and meat products; Halal ingredients; Nutraceuticals; and/or Probiotic products.</p>
Incentives for Halal Logistics Operators	<p>To promote halal industry and halal supply chain in Malaysia, the following incentives are granted to halal logistics operators:</p> <p>i) Income tax exemption of 100% of the statutory income for a period of five years. Unabsorbed capital allowances incurred during the pioneer period can be carried forward and deducted from the post pioneer income of the company. Any accumulated losses incurred during the pioneer period can be carried forward and deducted from the post pioneer income of the company for a period of seven consecutive years; OR</p>

	<p>ii) Investment Tax Allowance of 100% on the qualifying capital expenditure incurred within five years. The allowance can be offset against 100% of the statutory income for each year of assessment. Any unutilised allowances can be carried forward to subsequent years until they are fully utilised.</p>
Income Tax Act 1967	
Halal certification	<p>To support committed players in Halal sector, double deduction for expenses incurred in obtaining halal certification issued by an approved certification body is offered.</p>
Incentives for Green Manufacturing	
MyHIJAU Programme	<p>MyHIJAU Programme is a government initiative to support development of Green Technology that was approved by the National Green Technology and Climate Change Council (MTHPI) on 23 October 2012. The programme covers:</p> <ol style="list-style-type: none"> Sustainable Production: focus on production of green products and services including preventing pollution and clean production; and Sustainable Consumption: focus on consumption of green products and services including promotion and encouragement activities to buy and use green products and services. <p>There are four (4) main activities under the MyHIJAU Programme, to include Green Industry & SME Development; Green Labelling & Certification including MyHIJAU Mark recognition; Green Directory including Website & Mobile Apps; and Green Procurement including Government Green Procurement and Green Private Purchasing</p>
Green Technology Financing Scheme	<p>Green Technology Financing Scheme (GTFS) was established in 2010 to accelerate the expansion of green technology industry in the country by providing easier access to financing from financial institutions. Entrusted with Malaysian Green Technology and Climate Change Centre (MGTC), under the scheme, FIs under the supervision of Bank Negara Malaysia are eligible to provide financing for certified green technology producers and users. The financing is guaranteed by the Government through Credit Guarantee Corporation. The Scheme which targets both producers and users of green technology offers a Government guarantee of 60% of the financed amount and a 2% p.a. rebate on the interest/profit rate charged by financial institutions.</p>
Green Technology Tax Incentive	<p>Green Technology Tax Incentives for purchase and use of green technology were announced on 25 October 2013 during the Budget 2014. The Government provides Green Investment Tax Allowance (GITA) for the purchase of green technology equipment/assets and Green Income Tax Exemption (GITE) for green technology service providers. There are three (3) groups of activities under the Green Technology Tax Incentive as follows: -</p> <ol style="list-style-type: none"> Green Investment Tax Allowance (GITA) for Asset - Applicable for companies that acquire qualifying green technology assets and are listed under MyHIJAU Directory. Green Investment Tax Allowance (GITA) for Project - Applicable for companies that undertake qualifying green technology projects for business or own consumption. Green Income Tax Exemption (GITE) for Service Provider - Applicable for qualifying green technology service providers that are listed under MyHIJAU Directory.
<p>Sources:</p> <p>https://mida.gov.my/wp-content/uploads/2020/07/Chapter-2-Incentives-for-New-Investments.pdf</p> <p>https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Tax/dtl-tax-survey-of-global-investment-and-innovation-incentives-malaysia-2020.pdf</p> <p>https://www.pwc.com/my/en/publications/mtb/tax-incentives.html</p> <p>https://www.jsm.gov.my/tax-benefits</p>	

APPENDIX III: CERTIFICATIONS & STANDARDS [+ REFERENCES TO REPORTING FRAMEWORKS ETC.]

Below is the list of minimum Legal Requirements (Act) and Regulations which should be complied by the manufacturers. The organisations should comply with both relevant Act/s and the Regulations applicable to their business activities.

The list also provides specific Standards that help businesses to comply with the mandated legal requirements.

RELEVANT ACT AND REGULATIONS	APPLICABLE STANDARDS
Occupational Safety and Health Act 1994 and the relevant OSHA Regulations + Code of Practices Factory and Machinery Act 1974 and the relevant FMA Regulations Electrical Supply Act 1990 + Electrical Safety Regulations	Occupational Health and Safety Management Standard - ISO 45001: 2018 ISO 22000 Food Safety Management Systems MS 1480 HACCP Certification Programme MS 1514 Good Manufacturing Practice (GMP) for Food Manufacturing
Environment Quality Act 1974 and the relevant EQA Regulations	Environmental Management Standard- ISO 14001: 2015 ISO 14024 SIRIM Eco-Labeling Scheme
Electrical Supply Act 1990 – (a) Efficient Management of Electrical Energy Regulations	Energy Management Standard- ISO 50001: 2018 ISO 14067 Product Carbon Footprint Certification Scheme
Employment Act 1955 & Minimum Wage Order 1955	Social Accountability Standard SA 8000 or Social Responsibility Standard SR 10
Worker’s Minimum Standard of Housing and Amenities Act 1990	Social Accountability Standard SA 8000 or Social Responsibility Standard SR 10 / Occupational Health and Safety Management Standard - ISO 45001 : 2018
C-TPAT: Customs-Trade Partnership Against Terrorism by U.S. Customs Service Customs Trade Partnership Against Terrorism (C-TPAT) Part 6 for 7 Points Check for Trucks and Container Shipment Prevention of Crime Act 1959 Criminal Procedure Code ACT 593 The Transported Asset Protection Association (TAPA)	ISO 28000 Supply Chain Security Management Systems

The International Convention for the Safety of Life at Sea (SOLAS)

Custom Act 1967 including legislation 1977 termasuk Peraturan Kastam 1977, Perintah Tetap Kastam dan Perintah Duti Kastam 1988

Akta Senjata 1960 (Akta 206) & Akta Senjata Api (Penalti Lebih Berat) 1971 (Akta 37)

Police Act 1967 (Akta 344), Akta Agensi Persendirian Bil 4, 2010 KDN

Act 709, PDPA 2010

Act 155, Immigration Act

CERTIFICATIONS & STANDARDS

Document	Plastic reference	Relevant section	Waste / plastic-related disclosure requirements
GRI 306: MATERIALS (2016)	Plastics explicitly mentioned in reporting recommendations	Disclosure 301-1 Materials used by weight or volume	Total weight or volume of materials that are used to produce and package the organization's primary products (recommended to include plastics)
		Disclosure 301-3 Reclaimed products and their packaging materials	Percentage of reclaimed products and their packaging materials (including plastics)
GRI 306: WASTE (2020)	Plastics explicitly mentioned in the "disclosure guidance" section detailing the "disclosure requirements"	Disclosure 306-1 Waste generation and significant waste-related impacts	Description of activities that lead or could lead to waste-related impacts on the economy, environment or society; potential threat of marine pollution from leaked plastic packaging given as one example
		Disclosure 306-2 Management of significant waste-related impacts	Description of actions to prevent waste generation as well as waste-related goals and targets; improved materials selection and product design given as examples
		Disclosure 306-3 Waste generated	Total weight of waste generated in metric tonnes with a breakdown by composition of waste, plastic given as one example
		Disclosure 306-4 Waste diverted from disposal	Total weight of waste diverted from disposal in metric tonnes, and a breakdown of this total by composition of the waste and recovery options such as reuse, recycling and others; plastic given as one example
		Disclosure 306-5 Waste directed to disposal	Total weight of waste directed to disposal in metric tons, and a breakdown of this total by composition of the waste and disposal options such as incineration (with and without energy recovery), landfilling, and others; plastics given as one example

Document	Plastic reference	Relevant Section	Waste/plastic-related disclosure requirements
<p>SASB MATERIALITY MAP (2018)</p>	<p>Plastics explicitly mentioned as part of different issue categories (only applicable for selected sub-industries)</p>	<p>Waste & hazardous materials</p>	<p>Restaurants Total amount of waste; total weight of packaging; percentage of packaging that is made from recycled and/or renewable materials; percentage of packaging that is recyclable, reusable and/or compostable</p>
		<p>Product design & life cycle management</p>	<p>Household & personal products Total weight of packaging; percentage of packaging that is made from recycled and/or renewable materials; percentage of packaging that is recyclable, reusable and/or compostable; strategies to reduce the environmental impact of packaging through its lifecycle</p> <p>Container & packaging Revenue from products that are reusable, recyclable and/or compostable; strategies to reduce the environmental impact of packaging through its lifecycle</p>
		<p>Materials sourcing & Efficiency</p>	<p>Electronic manufacturing services & original design manufacturing Weight of end-of life products and e-waste recovered, percentage recycled</p>

APPENDIX IV: CASE STUDIES

Case study 1: Commitment from Financial Sector

Evaluation of ESG impact by financial service providers and the ESG D&I Providers and the increased transparency on corporate action has been effective in promoting corporate action towards sustainability and can be a lever to address the plastics challenge as well. In recent years, a considerable number of actual actions among investors related to plastics and the circular economy showed their serious interest in the issue of plastics pollution.

Morgan Stanley, for instance, committed to the “prevention, reduction and removal of 50 million metric tons of plastic waste” from landfills and the environment by 2030. Besides that, 26 financial institutions with USD 4.2 trillion of assets under management have so far endorsed the EMF’s New Plastics Economy initiative. Some new products and services to promote corporate action on plastics are already emerging, such as the Solactive Beyond Plastics Waste Index, which tracks companies that exhibit a significant commitment to action on the plastics challenge. Similarly, S&P Global recently released the key sustainability factors for ESG evaluations of consumer goods. This gives a 40% weightage to waste and pollution, within which plastic is highlighted, looking at the share of packaging material recycled, reused and recovered and the share of recycled materials used

Below is a list of benchmarked banks and manufacturing companies that can be considered as case studies for the sectoral guide (e.g., Sime Darby Plantation was cited in the VBIAF Palm Oil Sectoral Guide). The benchmarked companies have high scores in Carbon Disclosure Project (CDP), Dow Jones Sustainability Index world industry leaders 2020 and a strong commitment in Science-Based Target Initiatives (SBTi). The working group may select relevant companies and develop a case study for the reference of financial institutions.

Table Case studies of Benchmark Banks

Sub-sector	Companies	Justification
Bank	ING on the circular economy initiative	ING is a prominent bank on circular economy (CE) initiatives (a growing sustainability topic and very relevant to manufacturing). They have published a CE report, financed circular deals and investments, and embarked on other CE-related programmes.
Automobiles	BMW Group	DJSI Industry Leader 2020
Cement	LafargeHolcim	<ul style="list-style-type: none"> Scored A for climate and A- for water in CDP⁴⁹ Targets set and business ambition for 1.5°C⁵⁰

⁴⁹ Corporate Website, cdp.net, 2021

⁵⁰ Set a net-zero target in line with a 1.5°C future

		under Science Based Targets (SBTi) ⁵¹
	Siam Cement	DJSI Industry Leader 2020
Building Products	Owens Corning	DJSI Industry Leader 2020
Machinery and Electrical Equipment	CNH Industrial NV	DJSI Industry Leader 2020
Products and Consumer Electronics	LG Electronics Inc	DJSI Industry Leader 2020
Chemicals	Syngenta	<ul style="list-style-type: none"> • Scored A- for climate and A- for water in CDP • Targets set for well below 2°C under Science Based Targets (SBTi)
Food & beverage	Danone	<ul style="list-style-type: none"> • Scored A for climate, A for water, A- for forest timber, and A for forest palm oil in CDP • Targets set and business ambition for 1.5°C under Science Based Targets (SBTi)
Personal Products	The Unilever Group	DJSI Industry Leader 2020
Paper & forest products	UPM-Kymmene Corporation	<ul style="list-style-type: none"> • Scored A for climate, A for water, and A for forest timber in CDP • Targets set and business ambition for 1.5°C under Science Based Targets (SBTi) • DJSI Industry Leader 2020
Steel	Hyundai Steel	<ul style="list-style-type: none"> • DJSI Industry Leader 2020 • Scored B for climate in CDP
Plastic	Sekisui Chemical	<ul style="list-style-type: none"> • Scored A for climate, A for water, and B for forest timber in CDP • Targets set for 2°C under Science Based Targets (SBTi)
Textiles, Apparel & Luxury Goods	Chanel	<ul style="list-style-type: none"> • Targets set and business ambition for 1.5°C under Science Based Targets (SBTi)
	Moncler SpA	DJSI Industry Leader 2020

⁵¹ Corporate Website, sciencebasedtargets.org, 2021

APPENDIX V: ESSENTIAL READINGS: QUICK REFERENCES

Reference Documents / Information	Web Links
OECD Manufacturing Toolkit (Indicators)	https://www.oecd.org/innovation/green/toolkit/48704993.pdf
Climate Change and Principle-based Taxonomy, Bank Negara Malaysia	https://www.bnm.gov.my/documents/20124/938039/Climate+Change+and+Principle-based+Taxonomy.pdf
TCFD Implementation Guide	https://www.cdsb.net/sites/default/files/sasb_cdsb-tcf-d-implementation-guide-a4-size-cdsb.pdf
IFC Performance Standards	https://www.ifc.org/wps/wcm/connect/Topics_Ext_Content/IFC_External_Corporate_Site/Sustainability-At-IFC/Policies-Standards/Performance-Standards
Guidelines : Transboundary Movement of Used Electrical & Electronics Equipment	https://www.doe.gov.my/portallv1/wp-content/uploads/2010/07/ELECTRICAL_AND_ELECTRONIC_EQUIPMENTIN_MALAYSIA.pdf
Department of Environment – Scheduled E-Waste Management in Malaysia	https://www.doe.gov.my/garis-panduan-buangan-terjadual/
A New Circular Vision for Electronics	http://www3.weforum.org/docs/WEF_A_New_Circular_Vision_for_Electronics.pdf
Revised Guidelines for Importation and Inspection of Metal Scrap	https://www.miti.gov.my/miti/resources/V2_Announcement_on_Guidelines_for_Metal_Scrap_Importation_(002).pdf
Green Technology Masterplan (2017-2030)	https://www.pmo.gov.my/wp-content/uploads/2019/07/Green-Technology-Master-Plan-Malaysia-2017-2030.pdf
The National SCP Blueprint (2016-2020) The Pathways for Sustainable Consumption and Production (SCP) in Malaysia	https://www.oneplanetnetwork.org/sites/default/files/malaysia_the_national_scp_blueprint_2016_-_2030.pdf
Categorisation System for the Circular Economy	https://circulareconomy.europa.eu/platform/sites/default/files/categorisation_system_for_the_ce.pdf
Barclays: Environmental and Social Risk Briefing Infrastructure	https://www.banktrack.org/download/160620_infrastructure_guidance_note_pdf/160620_infrastructureguidancenote.pdf
WWF Low-carbon Manufacturing	https://www.international-climate-initiative.com/fileadmin/Dokumente/2018/180820_WWF-SA_Low-carbon_manuf.pdf
Securing Our Future: Net-Zero Pathways for Malaysia	https://www.wwf.org.my/?29365/TOWARDS-NET-ZERO-EMISSIONS-BY-2050

ESSENTIAL READINGS: DUAL MATERIALITY: ENVIRONMENTAL IMPACT ON THE MANUFACTURING SECTOR

Transition Risk	Physical Risk	Financial Risk
<p>Policy & Legal</p> <p>Prohibition of materials with a negative effect on climate (e.g., CFC ban)</p> <ul style="list-style-type: none"> Enhanced emissions-reporting obligations such as compulsory energy audit of manufacturing facilities Regulatory change of existing products and services (e.g., mandatory energy star labelling for electronic products) <p>Technology</p> <ul style="list-style-type: none"> Substitution of existing products and services with lower emissions options (e.g., the rise of energy-efficient electronic appliances) Transitioning to lower emissions technology, machine, and equipment <p>Market</p> <ul style="list-style-type: none"> Changing customer behaviour: Increased awareness of customers for climate change leads to climate-friendly production (e.g., slow fashion and low-carbon diet trend). Extreme weather events and increased energy costs will affect customer's purchasing power and priorities <p>Reputation</p> <ul style="list-style-type: none"> Stigmatisation of high carbon sector such as plastic manufacturing. Negative press coverage related to support of projects or activities with negative impacts on the climate. For instance, Nestle's bottled water production was getting a media backlash in relation to drought and water stress in California in 2016. 	<p>Acute</p> <ul style="list-style-type: none"> Increased severity and frequency of extreme weather events such as cyclones and floods disrupt the manufacturing activities and distribution of manufacturing products. For instance, severe flooding has forced a halt to Honda and Toyota assembly lines in Thailand that account for about 7 percent of their combined global car production in 2011 <p>Chronic</p> <ul style="list-style-type: none"> Higher temperatures can impact worker productivity and health in key sectors of our economy, including manufacturing Drought and water stress disrupting manufacturing industries that are highly dependent on water, such as beverage production, textiles, and paper production Climate variability may increase the risk of resource scarcity and reduce crop production, impacting the agro-processing and food production The rising temperature may damage sensitive components used for production in high-technology manufacturing facilities, as well as accelerating the deterioration of materials and equipment 	<ul style="list-style-type: none"> Increased costs such as raw materials, energy, and transportation costs due to the shift in climate action Increased capital expenditures for climate risk mitigation such as building flood defences Higher costs for climate change adaptation and prevention activities Higher prices for insurance due to higher frequency of extreme weather events (e.g., factory property insurance) Inability to attract financiers and investors due to uncertain risks related to the climate Decreased revenues due to reduced production capacity and sales caused by extreme weather events Decreased asset value and useful life leading to write-offs, asset impairment or early retirement of existing assets, due to asset deterioration caused by climate change (e.g., concrete degradation due to carbonation and corrosion, degradation of wood products, etc)

ESSENTIAL READINGS: GLOBAL INITIATIVES AND MOVEMENT ON SUSTAINABILITY AND PLASTIC DISCLOSURE

Name Of Institution	Document	Description	Plastic reference	Illustrative indicators
Ellen McArthur Foundation (EMF)	Circularity Indicators – An Approach To Measuring Circularity (2015) ⁵²	Proposes an indicator that measures how well a product or company performs in the context of a circular economy	Plastics not Explicitly mentioned in the proposed indicators, but in some application examples	<p>“Material Circularity Indicator (MCI)” is calculated by assessing the following inputs:</p> <ul style="list-style-type: none"> • Input in the production process: How much input is coming from virgin and recycled materials and reused components? • Utility during use phase: How long and intensely is the product used compared to an industry average? • Destination after use: How much material goes into landfill, getting recycled, reused? • - Efficiency of recycling: How efficient are recycling processes?
World Economic Forum (WEF)	Toward Common Metrics And Consistent Reporting Of Sustainable Value Creation (2020) ⁵³	Proposes metrics to ensure consistent reporting of sustainable value creation	Plastic explicitly mentioned	Tonnes of single-use plastic disposed of; “valued societal impact” in monetary terms of solid waste disposal, including plastics and other waste streams
United Nations Global Compact (UNGC)	Integrating The SDGs Into Corporate Reporting: A Practical Guide (2018); Business Reporting on SDGs: An Analysis Of The Goals and Targets (2017) ⁵⁴	Suggests advancing sustainability reporting by assessing company-relevant Sustainable Development Goals and setting related targets. Proposed indicators for disclosure are summarized from different reporting standards	Plastics/packaging impact explicitly mentioned in SDG 8 (Decent work and economic growth), SDG 12 (Sustainable production and consumption), SDG 14 (Life below water)	<p>Business action suggested Tracking and reporting e.g., methods to minimise amount of plastic in own products; understanding waste generation, e.g., extending the responsibility to post-consumer stage including waste collection, reuse and recycling; reducing marine pollution by e.g., adopting circular model for plastics production; developing circular models for products; improving resource efficiency</p> <p>Disclosure suggested (based on available standards) Amount of product or waste covered by extended producer responsibility; percentage of recycled input materials used in primary products; percentage of reclaimed products and packaging</p> <p>Possible disclosure gap called out Use and reduction of non-degradable materials in operation and supply chain; circular model for plastic production; change consumers' behaviour</p>

⁵² Corporate Website, ellenmacarthurfoundation.org, 2021

⁵³ Towards Common Metrics and Consistent Reporting of Sustainable Value Creation, World Economic Forum, 2020

⁵⁴ Business Reporting on SDGs, GRI, UNGC, 2017

ESSENTIAL READINGS: PLASTIC-RELATED RISKS AND OPPORTUNITIES FACED BY EACH INDUSTRY GROUP⁵⁵

		Plastic manufacturers	Plastic users	Plastic waste managers
Performance indicator	Partly responsible for causing sustainability challenges connected to plastic	High risk - originator of problematic materials	High risk - uses huge volume of plastic but often do not internalize the cost of disposal and end of life management	Not at risk when well managed; medium risk when waste treatment is inadequate
	Facing plastics related reputational, operational, regulatory, financial or market risks	High risk - scrutiny on businesses using problematic plastics, with possibility of increased regulations	High risk - consumer awareness on sustainability is growing, regulations expected to be more stringent	Some risk in the short term due to low prices for virgin material; some risk in the long term too when regulations call for greater accountability
Opportunities	Opportunities for product innovation	High opportunity - design inputs which are easy to recycle and use recycled input	High opportunity - reconsider materials used for products and packaging	High opportunity - invention of improved and effective recycling infrastructures
	Opportunities for process innovation	Medium opportunity - achieve less plastic or material loss during production stage	High opportunity - rethink process to reduce waste and build circularity into the system	Medium opportunity - develop new processes which are more efficient in collection and resource recovery
	Opportunities for business model innovation	Medium opportunity - business model can benefit from value chain collaborations	High opportunity - develop new models such as refuel models, take-back initiatives	High opportunity - develop business models that interact with customers and end consumers for improved collection and high quality and clean feedstock
Overall		Risk: High Opportunity: Medium	Risk: High Opportunity: High	Risk: Medium Opportunity: High

⁵⁵ Integration of plastic impact evaluation into ESG assessments, WWF, 2021

(a) Design indicators to evaluate corporate action on plastics and its impact

Currently there is no standardized approach to measuring and reporting corporate plastics impact. Different institutions and networks like the EMF have provided some direction and discussion but there is no agreed-upon approach to date. Until a standard set of indicators is developed, similar to the GHG Protocol for CO2 reporting,⁷⁰ it is important to ensure alignment with existing reporting standards (e.g., SASB or GRI) and regulations.

Indicators on preparedness capture the transition that a company is trying to make to reduce its plastics footprint. As mentioned earlier, an evaluation focusing on performance data only captures past development and misses the forward-looking component that is critical in investment decisions. The preparedness indicators could look at three major elements of a company’s strategy:

Company preparedness indicator ⁵⁶

Indicators for company's footprint management (preparedness indicators)	Are there targets to reduce negative impact of plastic?	Strategy and targets: Clear guiding principle and ambition level, manifested through SMART targets
	Is there roadmap with concrete planned actions?	Actions, milestones: Defined actions with timeline, strategic prioritisation of partnerships, participation in the Extended Producer Responsibility (EPR) scheme
	Is the strategy organizationally anchored?	Internal governance and transparency: Clearly defined roles, policies and transparency

It is recommended to assess the sub-industries (specifically of plastic users) according to type of plastics dealt with, plastic intensity in the product and/ or process and the lifespan of the plastic considered. A list of recommended indicator categories from the WWF’s Integration of Plastics Impact Evaluation into ESG Assessment report is provided below, with important considerations for each, the GRI’s disclosure requirements on materials and waste have been incorporated. These indicator categories should be included in an assessment framework in a way that ensures they do not contradict each other, and a company’s improvement on one of the metrics does not consequently result in a deterioration on any other.

⁵⁶ Integration of plastic impact evaluation into ESG assessments, WWF, 2021

ESSENTIAL READINGS: RECOMMENDED INDICATOR CATEGORIES FOR PLASTICS IMPACT AND IMPORTANT CONSIDERATIONS

Performance indicator	Indicator category	Description and points to consider	Example Metric
Plastic in Portfolio	#1: Total Plastic Footprint	This indicator category measures the overall plastic footprint, highlighting different types of plastic used, can be used to build baselines and benchmarks.	<i>% of revenue from products containing plastics</i>
	#2: Problematic plastic in portfolio	The indicator category increases transparency around plastic impact generated by the product/packaging either during the use phase (like microplastics from some types of textiles) or at the end-of-life. Special care in the design of metrics is required to prevent unintended actions to optimise indicators. If a metric in this category is e.g., based on weight/volume, light-weighted plastics that is mostly flexible plastics might become more prevalent which would add to the challenge rather solving for it, because flexible plastics are harder to collect and sort. One way to solve for this can be the use of metrics measuring the share of revenue generated from products containing problematic plastic either in their composition or in the packaging. This puts focus on overall minimisation of use across the portfolio rather than weight optimisation.	<i>% of revenue from products containing problematic plastics</i>
	#3: Recyclable or compostable plastic in portfolio	The challenge with this indicator category is to define recyclability. It is not so much about the recyclability of individual components but the final application (e.g., moving towards monomaterial design). Use of compostable plastic can be valuable in targeted applications coupled with proper waste management infrastructure. Compostable plastic is not an alternative to decreasing leakage to	<i>% volume of packaging material that is recyclable</i>

		nature, and therefore has limited advantage.	
Plastic from Process	#4: Waste generated in operations	The amount of residual plastic that is left behind at the site of production (e.g., by-products, scrap) varies in type and quantity from the three industry groups. As this waste is generated within its own boundaries, companies have full visibility and control.	<i>% of plastic waste in total manufacturing waste</i>
	#5: Responsible disposal of waste from operations	It may not be possible to eliminate plastic waste in operations. For the residual, producers have to take responsibility for environment-friendly disposal and treatment. The key is diversion from landfills and move towards recycling or reuse of the plastic in a closed-loop.	<i>% of plastic waste sent for recycling</i>
Plastic Waste Recovery	#6: Use of recycled content in portfolio	Besides design for recyclability (indicator category #3), increasing the use recycled content is key to promote circular plastic flows and moving the value chain to recovery and recycling. While recyclability aims to reduce the future impact (i.e., at end of life of product or packaging), a high share of recycled plastics shows how a company has already helped close the loop today.	<i>% of recycled content by volume in plastic inputs, e.g., split by polymer types</i>
	#7: Action on waste recovery of own products at end-of-life	The companies' responsibility is to ensure that their product or the associated packaging is not adding to the plastics challenge. Therefore, evaluators should acknowledge the action (or lack of it) that the companies take to recover the plastic and prevent unmanaged disposal. This indicator category can include either the actual physical recovery initiatives such as take-backs of plastic waste, or indirect action towards recovery such as contribution to EPR schemes.	<i>\$ EPR expenditure to take responsibility for impact of plastic at EOL of product</i>
	#8: Initiatives on infrastructure and beyond own supply chain	Apart from action within company boundaries, an important metric is also the investment into waste management systems across their	<i>\$ EPR expenditure for infrastructure</i>

		geographic footprint and support of pilots or R&D for new technologies. This indicator category has a broad scope with multiple possible metrics.	
Targets	#9: Commitment to phasing out of problematic plastic	Public commitments and targets guide corporate action and make the ambition level transparent. This indicator category specifically looks at reduction of problematic plastic. It is important to not just assess whether such targets exist but also how ambitious they are, and which impact they will have.	<i>Target and timeline on elimination of single-use plastics</i>
	#10: Commitment to addressing existing plastic waste	The indicator category captures a company's commitment to future contributions to tackling the plastic challenge by investing in new technologies for waste management, advancing infrastructure etc. This could be both for the company's own supply chain as well as beyond its own supply chain.	<i>Commitment to improve waste management system</i>
Roadmap and Concrete Actions	#11: Actions and Partnerships	To ensure target achievement, they should be backed by a well laid out roadmap and concrete steps. The roadmap can be defined by tasks on a timeline mobilizing both internal (majorly through defined actions) and external stakeholders (majorly through partnerships). To evaluate roadmaps, it is important to assess that the activities laid out are actionable and that the company is prepared to get started on those in a one- or two-year timeframe to reach the longer-term targets.	<i># of national /global alliances supported</i>
	#12: Reporting on milestones and progress	Setting and reporting on interim milestones promotes continuous action and prevents postponing tackling challenges – especially those connected to additional costs. With this indicator category, evaluators can assess the consistency with which a company progresses on its plastics related targets.	<i>Performance on interim milestones</i>

Organizational Enablement	#13: Roles and Responsibilities	<p>Roles and responsibilities make up the organizational structure of the company. Only if it is clear who is responsible to drive action, build and share know-how etc. the strategy can be brought to life.</p> <p>Proof points that can support the assessment are e.g., definition of responsible departments, involvement of C-level, employees dedicated to working on the plastics challenge (like those in R&D for new materials, or in design teams etc).</p>	<i># of positions assigned the work on addressing plastic impact</i>
	#14: Policies and Incentives	<p>Policies and Incentives guide action as they define intent and set boundaries on the one side and drive action on the other. Integration of plastics into both embeds the topic into everyday action of the company.</p> <p>It is important to not just track the number of such policies or incentives, but the level of application and reach across the hierarchy.</p>	<i>Incentives for innovation in R&D for product</i>
	#15: Reporting and communication	<p>Disclosure of measurement and performance of companies. If ESG reporting on plastics-related metrics is to drive change, companies that do not disclose their plastic footprint should be ranked less favourably than those that do.</p>	<i># of metrics disclosed</i>

ESSENTIAL READINGS: EXTENDED PRODUCER RESPONSIBILITY

Extended producer responsibility (EPR) aims to ensure that producers are made financially responsible for the life cycle of their products, including take-back, recycling and final disposal at the end of their useful life, this includes both domestic producers and importers. EPR is typically used for specific waste product streams such as packaging, small consumer electronics and batteries.

EPR can be implemented in various different forms, including product take-back requirements, economic and market-based instruments, regulations and performance standards, and information-based instruments. EPR provides environmental, economic and social benefits, including improved waste collection and treatment, higher rates of waste reuse and recycling, incentivising greener products, helping to finance waste collection and processing, ensuring higher quality secondary raw material, job creation, and reduced health risks from mismanaged waste. Downstream, EPR increases funding for collection, sorting, and recycling of packaging waste. Upstream, it encourages waste reduction. As producers pay fees according to the amount of waste they produce, and ideally also by the recyclability of their packaging, they are incentivised to reduce packaging and increase its recyclability. This supports the reduction of plastics consumption and increases recycling. For example, recycling of packaging in Italy increased from 3% in 1997 to 65% in 2014.

The implementation of EPR schemes can in fact trigger the required innovations in businesses to support the placing on the market of more circular-economy related products. It can also contribute to the development and improvement of waste and recycling industries. In particular, a number of substantial benefits to businesses can be identified as arising from a proper implementation of EPR schemes, from boosting their reputation, to ensuring their compliance with legislation, or leading to substantial cost savings.

ESSENTIAL READINGS: GHG CALCULATOR/ METHODOLOGY

Greenhouse gas emissions can be categorised into three groups or 'Scopes' by the most widely-used international accounting tool, the Greenhouse Gas (GHG) Protocol.

- **Scope 1** covers direct emissions from owned or controlled sources.
- **Scope 2** covers indirect emissions from the generation of purchased electricity, steam, heating and cooling consumed by the reporting company.
- **Scope 3** includes all other indirect emissions that occur in a company's value chain.

Source: <https://www.carbontrust.com/resources/briefing-what-are-scope-3-emissions>

GHG accounting and reporting should be based on the following principles:

- a) **Relevance**—Define boundaries that appropriately reflect the GHG emissions of the organisations and the decision-making needs of users.
- b) **Completeness**—Account for all GHG emission sources and activities within the chosen organisational and operational boundaries. Any specific exclusions should be stated and justified.
- c) **Consistency**—Use consistent methodologies and measurements to allow meaningful comparison of emissions over time. Transparently document any changes to the data, methods or any other factors in the time series.
- d) **Transparency**—Address all relevant issues in a factual and coherent manner, based on a clear audit trail. Disclose assumptions and make appropriate references to the calculation methodologies and data sources used.
- e) **Accuracy** – Ensure that estimates of GHG emissions are systemically neither over nor under actual emission levels, as far as can be judged, and that uncertainties are quantified and reduced as far as practicable. Ensure that sufficient accuracy is achieved to enable users to make decisions with confidence as to the integrity of the reported GHG information.

The various standards that can help with Emissions Management Strategy:

- ISO 14064-1 Greenhouse gases — Part 1: Specification with guidance at the organisational level for quantification and reporting of greenhouse gas emissions and removals issued by International Standards Organization
- ISO 14064-2 Greenhouse gases – Part 2: Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements
- ISO 14064-3 Greenhouse gases – Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions

Illustration

The manufacturing sector is diverse, including emissions from extraction of raw materials and extending throughout the value chain. Companies should consider the emissions from the entire value chain and report them in line with an industry accepted and recognised methodology such as the [GHG Protocol](#) to produce a GHG Inventory of the business.

GHG Emissions Inventory⁵⁷

Scope 1 Emissions

- Fuel consumed directly at a facility to produce electricity, steam, or power.
- Mobile combustion of vehicles/machinery
- Refrigerants

Scope 2 Emissions – Indirect Emissions

- Purchased electricity not combusted on-site

Scope 3 Emissions have been omitted from this exercise

For carbon intensive manufacturing sectors such as plastics, iron, and steel, further guidance may be available:

- GHG Protocol [Guidance on Iron and Steel](#)

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⁵⁷ Corporate Website, ghgprotocol.org, 2021