



Jordan's Green Industrial Transition: What Role Can Green Finance Play?

A Study on the Potential Demand and Supply of Green Finance in the Industrial Sector

Implemented by

giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

In cooperation with

 **Frankfurt School**
of Finance & Management
German Excellence. Global Relevance.

Published by the

Deutsche Gesellschaft für
Internationale Zusammenarbeit (GIZ) GmbH

Registered offices
Bonn and Eschborn, Germany

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As at

November 2022

Design

In house

Photo credits

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Text

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On behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ).

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Abbreviations

Abbreviation	Description
ABJ	Association of Banks in Jordan
ADQ	Abu Dhabi Developmental Holding Company
AFD	French Development Agency
ASE	Amman Stock Exchange
BMZ	Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung
BSI	Banking Stability Index
CAR	Capital Adequacy Ratios
CBJ	Central Bank of Jordan
CO ₂	Carbon dioxide
COP15	Congress of Parties
EDB	Emirates Development Bank
EE	Energy Efficiency
EIP	Economic and Investment Plan
EMS/EnMS	Energy Management Systems
ESG	environmental, social, and governance
E-TVET	Employment – Technical and Vocational Training
EU	European Union
FAO	Food and Agriculture Organisation of the United Nations
FDI	Foreign direct investment
FTA	Federal Tax Authority
GAFTA	The Greater Arab Free Trade Area
GAIN	Green Action Enterprises
GDP	Gross domestic product
GEFF	Green Economy Financing Facility
GFPs	Green Finance Products
GHG	Green houses
GG-NAP	Green Growth National Action Plan
GIEP	Government's Indicative Executive Program
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH
GTS	Green Technology Selector
GWh	Gigawatt hours
IBRD	International Bank for Reconstruction and Development
IFIs	International Financial Institutions
JAPM	Jordan Association of Pharmaceutical Manufacturers
JCI	Jordan Chamber of Industry
JEF	Jordan Environment Fund
JFSI	Jordan Financial Stability Index
JLGC	Jordan Loan Guarantee Corporation
JOD	Jordanian Dinar
JREEEF	Jordan Renewable Energy and Energy Efficiency Fund
KADDB	King Abdullah Design and Development Bureau
MEMR	The Ministry of Energy and Mineral Resources

MENA	Middle East and North Africa
MFCA	Material Flow Cost Accounting
MFIs	Microfinance companies
MoITS	The Ministry of Industry, Trade and Supply
MoPIC	The Ministry of Planning and International Cooperation
MSME	Micro, Small and Medium Enterprises
NEPCO	National Electric Power Company
NPL	Non-Performing Loan
OECD	Organisation for Economic Co-operation and Development
PV	Photovoltaic
RE	Renewable Energy
RECP	Resource Efficient and Cleaner Production
RECPA	Resource Efficient and Cleaner Production Assessment
RSS	The Royal Scientific Society
SDG	Sustainable Development Goals
SMEs	Small Medium enterprises
TEST	Transfer of Environmentally Sound Technology
UNCTAD	United Nations Conference on Trade and Development
UNIDO	United Nations Industrial Development Organization
USAID	United States Agency for International Development
USD	United States Dollar
VC	Venture capital
YOY	Year-over-year

Executive Summary

This study is intended to develop an understanding of the potential and current barriers to increasing supply and demand of green finance and its improved access to by the industrial sector in Jordan. Green financing has yet to become a differentiated offering on the supply side, with banks expressing limited awareness and understanding of green technologies, particularly on the part of relationship managers, and the necessity of capacity building measures as a remedy. Many industries, at the same time, were not aware of available, though mostly conventional, financing. On both sides of the market, availability of and access to technical expertise was considered an obstacle, hindering green investments particularly in water and waste management, compared with PV systems and other energy-related measures. Industries that had invested in green technologies were convinced of their benefits, particularly in terms of cost reductions. Financing green energy investments such as familiar and well-understood solar PV systems was not perceived to be risky by the banking sector given the understanding that realised cost savings would facilitate repayments. However, lack of specialised funding on efficient water and waste management as well as the limited availability of subsidised but generic funding from the Central Bank of Jordan (CBJ) and the lengthy process required to access it were considered obstacles to increasing the supply.

Desktop research was complemented by semi-structured interviews and focus groups with participants from financial institutions, industrial businesses, and sector bodies to determine the readiness of i.) financial institutions to provide green financing, ii.) industrial businesses to demand such finance products, iii.) and understand the enabling environment such as governmental green policies or programmes run by international donors.

Given the identified obstacles, awareness raising, capacity building, and improved access to technical expertise are needed for both the banking and industrial sector. Any such measures should be improved with support from the government and stakeholder organisations. Government entities should develop programmes and incentives aligned with national strategies that build on best practices and lessons learned from the expansion of green energy investment to enable a more comprehensive take on the green industrial transition.

Introduction

In Jordan, the industrial sector has recovered from the initial negative shock caused by the COVID-19 pandemic in terms of the level of its output, however, disruption to supply chains and rising energy and commodity prices, which are partly a consequence thereof, increased costs of production. Such intensified market pressure creates further incentives for businesses to increase their rate of adaption of more resource-efficient and environmentally friendly product methods as this will decrease their costs of production, further to reducing their negative impact on the environment.

While the banking sector in Jordan is aware of global green finance developments, existing products specialised for green investments are targeted at retail clients seeking to acquire more eco-friendly appliances or hybrid or electric vehicles or to install PV systems or solar water heaters. Green investment projects from SME and corporate clients, including those in the industrial sector, are treated as any other investment based without any consideration of the environmental impact.¹ On the other hand, awareness of loans subsidised by the CBJ, let alone the possibility to undertake green investments with said loans, remains limited among businesses in the industrial sector. For both the banking sector and businesses, awareness of green technologies beyond the well-understood PV and solar heating projects and understanding of potential benefits and costs associated is another barrier.

This study and the resulting report are intended to provide an understanding of how green investments by the industrial sector in Jordan may be increased by an expanded supply of and demand for green finance and improved access, as well as supporting the development of the green finance ecosystem through building an understanding of some of the barriers on both sides of the market for green finance and recommendations to address the identified barriers. Chapter 2 establishes the market context, providing overviews of the industrial and financial sectors as well as green financial and industrial policies in place. Chapters 3 and 4, respectively, address the supply of and demand for green finance. Finally, conclusions and recommendations may be found in Chapter 5.

¹ Except that CBJ subsidised loans for renewable energy are subject to a ceiling of JOD 4 million, compared with JOD 3 million for other eligible investments in applicable sectors

Methodology

The study was initiated with desktop research into the market context of Jordan, with overviews of the financial and industrial sectors, available green financing products, as well as the backdrop formed by green financial and industrial policies. To complement the desktop research, qualitative methods were adopted in the form of semi-structured one-on-one interviews and focus groups conducted by Frankfurt School of Finance and Management's (FS) team of experts.

FS Experts conducted a series of semi-structured one-on-one interviews with the banking sector and a number of focus groups with the industrial sector and sector representatives in order to assess the demand and supply of green financing in the industrial sector. The questionnaires used to conduct these semi-structured interviews and focus groups may be found in annexes 3 and 4, respectively.

The interviews were conducted with nine senior managers from the SME and corporate departments at Bank Al Etihad, Capital Bank, Housing Bank, Jordan Kuwait Bank, Arab Bank and Jordan Islamic Bank (see annex 1 for further details). The interviews aimed to assess the current supply of green financial products to the industrial sector, assess the readiness of banks to implement green policies and to explore the framework conditions including incentives and bottlenecks for banks to introduce new green products for the industrial sector.

The aim of the focus group discussions with the industrial sector were to assess the current demand for green financial products, to understand the sectorial needs and perceived barriers, and to explore the banking opportunity from the industrial point of view. The focus groups were attended by seventeen participants from eleven institutions – JO Petrol, Al Hassad Plastic Company, Siniora Food Industry, Gulf Technical Industrial Est GEPICO, Alsaha for electrical systems, Abdin Industrial - Commercial Refrigeration & Kitchen Equipment, Ram Pharmaceutical Industries Co, Bait Al Maqdis for digital printing, KADDB and JCI (see annex 2 for further details) – and by representatives from the food processing, chemicals, garments, and pharmaceuticals sectors at the Jordan Chamber of Industry (JCI).

1 Market Overview

1.1 The Industrial Sector and Potential for Green Growth

The industrial sector remains a key pillar of the Jordanian economy, contributing 22.4% of the GDP and provides 14.2% of total employment with 227,000 jobs in mostly low-to-medium skilled positions in 2021.² With its indirect impact on transportation, storage, retail, and banking, the industrial sector is estimated to contribute as much as 40% to the GDP (MoITS, 2017). Industry in Jordan was not affected by COVID-19 as severely as other sectors such as tourism or transport, nevertheless, year-over-year output contracted by as much as 6.9% (JOD 1,481 to 1,378 million) and 5.3% (JOD 1,842 to 1,745 million) in Q2 and Q3 in 2020 and it took until Q3 2021 for the sector to return to levels before the pandemic (JOD 1,838 million, cf. JOD 1,842 million in Q3 2019). The sector's contribution to the current account with a share of 59% of exports amounting to JOD 5.8 billion also improves the foreign exchange reserves and supports the stability of the JOD's peg against the USD.

Mining and quarrying as well as manufacturing are the key industrial sub-sectors in Jordan. The former composed of large firms extracting raw materials, such as potash and phosphates and other metals and minerals, at large scale, the mining and quarrying subsector accounts officially for 2.7% of GDP and 17% of industrial exports and 10.4% of all exports. The sub-sector is growing along with global market trends, but over 2010-2021 growth was at a lower annualised rate of 4.0% than the overall economy at 4.9%. On the other hand, with 18,000 registered businesses, the manufacturing subsector is composed mostly of SMEs with low-to-medium quality products, particularly in sub-sectors such as chemicals, pharmaceuticals, food-processing, textiles, packaging, accounting for 19.7% of the GDP. Free trade agreements with crucial export destinations such as the United States, the European Union, and the Arab World allowed manufacturers to expand their operations, currently shipping industrial goods and materials to more than 140 countries, particularly to the USA, India, China, and countries in West Asia. Highly integrated into global value chains, manufacturers realise JOD 4.8 billion in exports, amounting to 49% of all exports. Leading manufacturing exports are fertilisers, ready-made garments, pharmaceutical products, jewellery, electrical appliances, and food products. The sub-sector grew at a lower annualised rate of 3.8% over 2010-2021 than the overall economy at 4.9%. However, in recent years the growth rate has been very low or negative due to rising energy, transportation and commodity prices, increased competition from other countries in the region, as well as reduced domestic demand due to high unemployment. Both sub-sectors have significantly above average labour productivity³, with manufacturing employing 217,300 workers at 28% and mining and

² Jordan Economic Modernization Vision 2033 estimated figures.

³ defined as real gross domestic product (GDP) per hour worked

quarrying employing 9,300 workers at 283% above average productivity, according to the Jordan Economic Modernization Vision 2033.

Due to the relatively small domestic market size, the implementation of liberal industrial policies since the early 2000s focused on export-driven economic growth. Introduction or revision of laws regulating securities markets, insurance, competition, customs, intellectual property rights, among others, the legal framework for investing in and conducting business in Jordan turned the Kingdom more favourable to foreign investments (OECD 2022). Under the 1987 Investment Law, inward capital flows were unrestricted, however, outward flows were subject to approval by the Central Bank.⁴ Foreign investors were also granted equal treatment with domestic investors for investments into manufacturing, allowing them to up to full ownership while retaining restrictions to ownership to 50% in mining. The law also granted 10-year exemptions from income and social security taxes of 25%, 50% and 75% depending on the classification of the project's location for the purposes of promoting development, with the possibility of 1-year extensions for capacity increases of over 25%, up to a maximum of four years. A new income tax law reduced the tax rate for industrial and mining companies at 15%.

As a confirmation of the increased attractiveness for foreign investment following the reforms, FDI into Jordan sharply increased starting in 1997 to peak at USD 3.5 billion in 2006, but following the Global Financial Crisis of 2008-2009, decreased to USD 1.5 billion in 2011, recovering to exceeding USD 2 billion in 2014 and 2017, but then to sharply decrease once again to below USD 1 billion 2018 where it has remained since then. In 2021, FDI amounted to USD 622 million. Over 2013-2017, only 20% of greenfield FDI in Jordan was directed into manufacturing; real estate and construction (37%) and energy (32%) sectors were the leading recipients of FDI.⁵

Conflicts, particularly the war in Syria but also continued instability in Lebanon and Iraq, have led to a disruption of trade with neighbours, as well as increasing transport costs due to disruption to trade routes. With sharply rising public expenditures - public debt rose to exceed 90% of GDP since 2018 - there is limited possibility for fiscal measures to support innovative industrial policy making despite the need to provide stimulus measures. Growth in the industrial sector needs to be achieved by attracting more FDI or enabling higher levels of domestic investment.

For industrial firms to remain competitive despite recent challenges and considering the increasing negative effects of climate change, it is crucial to transition towards more environmentally friendly and resource-efficient production methods. Already today, growth in the industrial sector appeared in activities deemed less resource-intensive since supply of fresh water and electricity remain key bottlenecks. Some

⁴ By the 1995 Investment Promotion Law, foreign investors were assured the right to repatriate funds (the original investment and accrued returns or profits) in convertible currencies when exiting or liquidating investments and to be paid in convertible currencies if their investment were to be expropriated by compulsory purchase in the name of public interest.

⁵ FDI Qualities Review of Jordan: Strengthening Sustainable Investment, OECD, 2022.

efficiency measures and adaptation of renewable energy solutions are being taken to improve the availability of both resources.

As the world's second most water scarce country, the limited availability of water resources has considerably restricted the industrial sector. In 2018, industrial freshwater usage amounted to 3.21% of total water withdrawal in Jordan, compared to the global average of 16.2%, with higher shares in more industrialised economies: 45.2% in the EU, 47.2% in the US and 22.3% in China.⁶ However, reductions in the share of water used by agriculture through switching to less water-intensive crops and adopting drip irrigation or hydroponics⁷, increased availability of desalinated water, as well as the adoption of water-saving technologies and more environmentally friendly processes may unlock previously unviable subsectors that would improve the feasibility of new types of industrial investments. Another key area for technological improvement can refer to the treatment of wastewater from industrial processes that is often not properly managed.⁸ First attempts have been undertaken, such as technical assistance for the diffusion of the SwitchMed experience and its MED TEST II component in improving efficiency of water use. At one beverage producer participating in the project 26,000 m³ of water was annually saved through installing more efficient devices and modifying processes, with potential to treat 40,000 m³ of wastewater annually for agricultural use. Similar measures could yield an additional annual savings of over 64,000 m³ if implemented in 12 already identified food and beverage producers. While SMEs and even larger businesses lack technical capacity to undertake such measures, training of technical assistance providers will help address the lack of knowledge: professionals from 7 companies were trained on UNIDO's TEST approach during MED TEST II (Water Sector GG-NAP).

Moreover, the industrial sector remains almost entirely dependent on oil and gas imports for its energy needs, accounting for about a quarter of total energy consumption and thus having a significant indirect share of GHG emissions. While most industries source their electricity from the grid, solar PV installations are increasingly becoming viable due to decreases in costs. MEMR's Master Strategy also stipulates that by 2030 domestic sources – mostly renewable energy and oil shales – are to account for 48.5% of primary energy (cf. 15% in 2019) and renewable energy sources should have 31% share in electricity generation (cf. 13% in 2019). Accordingly, this reduction in the cost of electricity generation should help decrease the cost of electricity for industries and increase their competitiveness, particularly since the cost of electricity in Jordan is some of the highest in the region (Jordan: USD 0.123 / kWh, Egypt: USD 0.058 / kWh, Iraq: USD

⁶ AQUASTAT core database, FAO, 2018 and own calculations

⁷ According to USAID, farmers often consume 2-5 more water than is needed, indicating strong potential to implement water-saving measures

⁸ In 2017, a USD 930 million plan to improve wastewater collection in Amman and Zarqa Governorates and to construct new wastewater treatment plants and to expand or refurbish existing ones was launched to increase the amount of treated wastewater from 115 to 250 million m³ in 2025. The additional supply of treated wastewater is intended to substitute for some of the fresh water used in industry and agriculture.

0.041 / kWh, Saudi Arabia: USD 0.068 / kWh).⁹ In fact, as a share of all operating costs, electricity costs can be over a quarter to nearly a half, depending on the sub-sector. In food-processing, JCI estimates as much as 55.8% of total consumables to fall under energy costs (JCI, 2019). Businesses in the industrial sector also have high thermal needs, currently usually met with fuel oil or coal. However, producers are encouraged to switch to natural gas which can reduce their energy costs by 25-55%. Concentrated-solar thermal technologies have also been implemented at some factories, but they remain to be more widely adopted. Combined heat and power applications allow energy savings when both electricity and thermal output are required.¹⁰

Jordan's industrial sector is starting to address challenges related to waste – this refers to both as part of the production process and the products post-consumer life – but has so far not recognised it as valuable resource. Manufacturers, for instance, often choose to produce with virgin materials out of convenience and due to their relative low cost. Raising awareness to promote reuse and circular economy approaches, as well as to increase producer responsibility, however, may offer crucial avenues for additional value creation and lead to improved resource efficiency. Waste deposited in landfills accounts for 10% of the country's GHG emissions. About 1,000 tons of hazardous, yet recyclable waste from the production of liquid batteries or battery recycling is exported. Untreated hazardous materials, of industrial or medical origin, may leak toxic, corrosive, or reactive materials to air, soil, or groundwater.

Given the multiple sectors where the environmental impact of industrial activity can be reduced, environmental awareness going forward with further investment into the industrial sector would ensure the management or mitigation of the effects of climate change as well as the conservation of Jordan's resources. In the future, Jordanian exports may become subject to environmental tariffs introduced in international markets to mitigate climate change, which would be another reason for industry to adopt more sustainable practices to maintain or improve their competitiveness and maintain access to markets and consumers in more developed economies.

1.2 The Finance Sector in Jordan

The financial services sector in Jordan is well-developed, particularly compared regionally, with a wide range of services from microfinance to retail and corporate commercial to investment banking, accounting together with insurance services for 8.5% of GDP in 2020.^{11,12} Despite the rapid growth of microfinance and financial technologies in recent years, the sector remains dominated by commercial banks. Currently,

⁹ Globalpetrolprices.com, March 2022

¹⁰ The Hashemite Kingdom of Jordan: Renewables Readiness Assessment, IRENA, 2021.

¹¹ Central Bank of Jordan Annual Report, 2019 and 2020

¹² In contrast, the microfinance sector had a total gross loan portfolio of JOD 282 million in Q2 2022 and remains of limited applicability to the industrial sector, despite serving SME clients

21 commercial banks operate in the Kingdom, including 12 domestic conventional banks, 3 domestic Islamic banks, 5 foreign-owned conventional banks and a foreign-owned Islamic bank.

Aggregate assets of commercial banks worth JOD 61.6 billion in 2021 amount to 190% of GDP, well above neighbouring Egypt (125%)¹³ or Turkey (121%)¹⁴. Direct credit facilities account for 49% of the banks' total assets and thus are the most significant component of their asset structure. The outstanding balance of total credit facilities granted by licensed banks increased from JOD 28.6 billion at the end of 2020 to JOD 30.0 billion by the end of 2021, with an increase of 4.9%¹⁵.

Accordingly, bank-provided domestic credit to the private sector stood at 83.1% of GDP in 2020, however, financial inclusion remains limited as only 28.2% of large corporates and 14.2% of SMEs have loans or credit lines, significantly below the average shares of 37.7% and 22.0% in peer economies in West Asia and North Africa. Credit facilities extended to mining and manufacturing, respectively, stood at JOD 168.2 and 3,485.4 million at the end of 2021, amounting to merely 12.2% of total credit facilities.

Both commercial and Islamic banks provide asset financing on loan structures with tenors up to 10 years and grace periods up to 2 years. While applicable interest rates vary according to the risk rating of the client, the average prime rate stood at 8.37% as of 2021¹⁶. Particularly in southern areas outside Amman Islamic banks have much higher penetration and play an important part in broadening financial inclusion. Islamic banking accounts for 16.9% of banking, with Jordan Islamic Bank individually accounting for 9.5% share of total assets.

Banks are regulated by the CBJ, which is also authorised to supervise non-bank financial institutions including lending and microfinance companies. New regulation is expected to bring all financing activities under CBJ supervision¹⁷. The Association of Banks in Jordan (ABJ), on the other hand, was officially designated under the relevant article of the Banking Law as the sector's association and advocate, primarily to ensure cooperation and coordination between private banks as well as to promote their capabilities.

The Jordanian banking system is highly stable, with banks' Capital Adequacy Ratios ranging between 17-20% over 2007-2020, more than clearing the CBJ's requirement of 12%. In 2019 and 2020, the ratio stood at 18.3%, as the banks were instructed not to distribute dividends as part of the CBJ's measures to address the impact of COVID-19 and keep liquidity in the system. Quality of assets remained high, as NPLs only rose

¹³ The Central Bank of Egypt, Monthly Statistical Bulletin

¹⁴ The Central Bank of the Republic of Turkey Statistics

¹⁵ Association of Banks in Jordan Annual Report, 2021

¹⁶ Association of Banks in Jordan Annual Report, 2021

¹⁷ CBJ also regulates and supervises the foreign exchange sector. The Ministry of Industry, Trade and Supply (MoITS) and the Amman Stock Exchange (ASE) are responsible for regulating and supervising insurance companies and financial intermediation companies, respectively.

slightly from 5% at the end of 2019 to reach 5.5% at the end of 2020; banks' provisions covered 71.5% of NPLs.

1.3 Green Policy Mapping

The Jordanian government recognises the need for green policies in recently developed national strategies that aim to enable sustainable industrial growth; this includes accelerating renewable energy and energy efficiency, sustainable water use, and waste management in the industrial sector, as well as sustainable transport initiatives linked to industrial supply chains. Improving access to finance for the sector and streamlining loan application processes are also increasingly recognised as action areas.

1.3.1 Green finance policies

The CBJ is in the process of scoping the possibility of developing and enforcing green monetary policies within its mandate, as well as drafting, in cooperation with the World Bank, a strategy that will aim to address local priorities based on international best practices. Until then, attempts to incorporate green finance development are bank-based.

In 2016, the CBJ joined the *Sustainable Banking and Finance Network (SBFN)*, a voluntary community of financial sector regulators, central banks, industry associations and environmental regulators from emerging markets, with the objective of supporting each other in the development and implementation of national frameworks for sustainable finance. The network provides capacity building and serves as a platform for peer-to-peer knowledge sharing to deepen collective learning and for members to benefit from global best practices. CBJ also joined the *Network of Central Banks and Supervisors for Greening the Financial System (NGFS)* in December 2021, aiming to explore its own role in the financial system to regulate and mitigate risks related to conventional banking, as well as to mobilise mainstream finance for green and low-carbon investments.

1.3.2 Green industrial policies

Identified as a major growth engine in the *Economic Modernisation Vision 2033*, launched by His Majesty the King Abdullah II in 2022, the industrial sector is expected to double its contribution to employment with an additional 260,000 jobs and from JOD 5.3 billion to JOD 11.1 billion to GDP by 2033. Projected growth is expected to be led by exports, the share of which in industrial output is expected to rise from 35% in 2021 to 65% in 2033. Within the additional manufacturing output, JOD 1.5 billion and JOD 1.1 billion are expected to be achieved in, respectively, the strategic sub-sectors of food-processing and pharmaceuticals. Other strategic sub-sectors are textiles, chemicals, and engineered products, contributing additional JOD 900 million, JOD 800 million and JOD 300 million by 2033. The mining sector is also identified as a driver of growth, if to a lesser extent. The sector's contribution to GDP is expected to grow from JOD 700 million to JOD 2.1 billion, with 27,500 jobs in 2033 compared with 9,300 in 2021.

Jordan also defined, with support from the World Bank and other development partners, the *Reform Matrix for 2018-2022 (extended to 2024)* that covers 11 pillars, including improving access to finance, improving energy efficiency, and increasing water security. Among structural reforms that may provide indirect support for industrial firms and their decision to invest, the Ministry of Planning and International Cooperation aims to improve infrastructure and promote digital and green transformation, as well as public-private dialogue.

Moreover, the Government of Jordan (GoJ) received financing from the World Bank to implement the Industrial Development Fund project which aims to promote investments and exports by project beneficiary firms in the manufacturing sector. The MoITS is owning and implementing the project, which will consist of the following three components:

1. Industry upgrading, implemented by JEDCO, and export development, implemented by Jordan Exports, programmes providing matching grants to manufacturing firms to modernise operations leading to improved product quality and upgraded production processes, increased exports through access to new markets and expanding in existing ones, as well as reduction in resource consumption, waste, or emissions
2. Outcome-based incentives programme, implemented by MoITS/Fund, providing incentives to firms that achieve targets in areas critical to achieve sector's full potential (higher female employment ratio; introduction of new exportable products; energy/water efficiency; emission reduction; etc.)
3. Easing access to export credit insurance, implemented by JLGCC, and to new supply chain finance products.

The above three programmes will form an integrated support package for manufacturing firms to benefit from financial support combined with technical business development support that will be provided by implementing partners to selected groups of firms.

Environmental concerns were also recognised in the *Jordan 2025 National Vision and Strategy* released in 2015, which addresses green measures to improve energy security included utilising local, particularly renewable, energy sources, encouraging private sector investment into green energy, reducing energy losses in transmission, requiring green building codes, promoting green standards for devices, promoting solar energy for water heating and raising awareness of financial benefits of energy efficiency.

2 The Supply of Green Finance Products

As the market for green finance in Jordan is still in its early stages, the banking sector currently lacks tailored products for the industrial sector's investments in environmentally friendly and resource-efficient production technology. Banks are nevertheless recognising the need to gear asset portfolios towards more sustainable investments and have also started to launch some initiatives (see Chapter 3.1). In the survey on the climate change risks and green finance survey, conducted by the ABJ in coordination with the CBJ, in 2021, participating banks (total of 17) confirmed that the most important precautionary measures that could reduce the impact of climate change on their current and future standing are:

- Gearing up **financing renewable energy and energy efficiency projects** of businesses (and individuals)
- Allocating funds to support sectors particularly affected or at risk of being affected by climate change
- Adopting a national **green policy for financial operations** to support and motivate projects and products aligned with climate action and green investments
- Developing new in-house competencies and specialisations.

Table 1 Survey results

Statement	% Applies
Physical risks of climate change and environmental degradation, and the risks of transition to a low carbon economy are not studied and identified.	88%
Climate change and environmental risks taken are not considered in internal capital adequacy assessment.	88%
Participated in the initiatives and programs of the Central Bank related to supporting green finance.	82%
Risks of transition/transformation to a low carbon economy would affect the performance of the activities of the economic sectors they lend too.	76%
Climate change and environmental risks were not integrated into the Bank's risk management framework.	71%
Preferential terms for green finance products.	70%
Liability risks that may affect the bank in the case of non-compliance with the legislation are not considered.	65%
Dealt with local/regional/international institutions involved in supporting green finance.	65%
Elements of green finance not included in the Bank's strategic plan.	53%
No approved credit policy to consider the green finance dimension for credit decisions.	53%
No green finance products that support sustainable development.	29%

From the perspective of surveyed banks, the most important exposures that could arise due to climate change and environmental risks to disrupt cash flows and consequentially jeopardise loan repayment are:

1. Corporates and SMEs – additional costs of hydrocarbon-based energy to incorporate externalities incurred in all sectors to adhere to environmental safety regulations, including reducing their carbon emissions
2. Corporates in the energy and mining sectors (account for 40% of direct credit facilities granted) – decreases in activity due to more strict environmental regulation or changes in consumer behaviour in response to increased awareness and availability of more environmentally-friendly alternatives
3. Individuals – loss of income due to job losses following diminished or discontinued economic activity, need to relocate due to climate change rendering certain regions inhabitable.

2.1 Screening of the Banking Market

The banking sector is still in the initial phases of developing green products, with banks having so far piloted products for the retail segment, to finance installation of solar PV panels or solar water heaters, and purchase of energy saving appliances and hybrid or electric vehicles. However, such experience is of limited relevance for green finance needs of industrial firms and as reflected in the survey banks have expressed that they have inadequate knowledge of green technologies, of the potential impact of climate change and of specialised financial products that would allow them to manage such risks and that they need guidelines and further regulation for clarity to be able to develop green finance products for the industrial sector.

In the absence of specially tailored green loans for the industrial sector, banks finance industrial sector green projects with their conventional loans, taking into consideration the projected cost savings in green investments. Banks will need to develop better understanding of green technologies and products and how they may benefit enterprises, including those in the industrial sector, to improve their loan decision-making to recognise effects on sustainability of both the environment and the enterprises. Through raising their own awareness of green investments, establishing better communication channels with the industrial sector, and ensuring that relationship managers serving industrial enterprises possess adequate understanding of green technologies in the industrial context, banks would become better placed to serve the needs of the sector and facilitate green investments with access to green finance.

Some banks have also begun to take greater notice of their own footprint on the environment and undertaken initiatives to reduce it, such as reducing the amount of printed material and reminding customers of the option to raise awareness, reducing trips to branches by adopting digital channels for a broader set of services, as well as corporate social responsibility projects such as undertaking energy efficiency and recycling measures for their own operations. In addition, as an example, Bank of Jordan has

invested in three solar PV plants to cover almost all energy needs of its branches and headquarters, as well as undertaken tree planting efforts to combat desertification and increase green spaces, launched an initiative to train women in disadvantaged areas in beekeeping which not only supports the sustainability of habitats and agriculture but also allows them to generate their own incomes.

Moreover, supply of green finance products – in the absence of specific incentives offered by public entities or other organisations – are likely to be subject to market conditions that already today restrict the supply of finance for businesses in Jordan. Particularly for SMEs, but also for many corporate clients, supply of finance is limited due to several issues on the demand side: inadequate levels of tangible collaterals or guarantees, management experience, credit history, free cash flow for debt servicing and proper bookkeeping. As particularly SMEs' access to finance is a challenge that has received significant attention, some progress has been made in easing barriers through changes in regulation and supply side measures. Establishment of the first credit bureau in Jordan in 2016 has helped address the availability of credit history, providing banks with verifiable information for their lending decisions. Loan guarantees provided by the Jordan Loan Guarantee Corporation (JLGC), with up to 70-85% coverage for SME loans¹⁸, helps creditworthy businesses overcome their lack of collateral to obtain loans.¹⁹ Launch of a fund offering subsidised loans by the CBJ (see section 2.2) has contributed to increasing credit facilities granted particularly to SMEs but also to corporate clients.

2.2 Screening of public and donor funds

The CBJ has allocated JOD 1.3 billion (equivalent to about 4% of direct facilities granted by banks) to support various sectors including the industrial sector, and cross-cutting investments in renewable energy without any allocation to each sector. Nevertheless, this fund has been the main source of financing available for green projects, particularly on more favourable terms, with JOD 233 million disbursed for renewable energy investments. The industrial sector has the largest share among the targeted sectors, with JOD 623 million outstanding (see Table 2).

The fund provides loans of up to JOD 3 million (for renewable energy up to JOD 4 million) facilitated through banks operating in Jordan, especially to SMEs for asset financing at low interest rates and favourable loan conditions that help address the issue of high interest rates. Under these subsidised loans programme, the CBJ lends to banks 1% and 0.5% interest, respectively, for businesses located in Amman and outside Amman for on-lending to eligible clients at very competitive rates between 3-4% and 2.5-3.5%,

¹⁸ JLGC Annual Report 2021

¹⁹ JLGC provides coverage of up to JOD 1 million per client, which is below loan sizes requested by corporate clients and particularly larger medium enterprises, therefore inadequacy of available collateral continues to be a challenge as businesses require larger or additional loans.

respectively. Loan tenors are up to 10 years with grace periods up to 2 years. In contrast to attractive loan conditions, the loan approval process is lengthy as the CBJ is involved in each loan approval, receiving the client's credit reports and approval from the bank and re-evaluating and approving before disbursing the loan amount to the bank. Also, credit limits are applied on a group basis for groups of companies, with the implication that the loan ceilings are too low for corporate clients.

Table 2 CBJ Subsidised fund utilisation in the industrial sector and for renewable energy

	Amount (million JOD)	% Of total	Number of projects	% Of total
Renewable Energy	233	19%	458	27%
Industrial Sector	623	51%	848	51%
Total	1,216	100%	1,672	100%

However, some participants in focus groups mentioned that they were not aware of this fund, which may be attributed to inadequate marketing by banks and inadequate knowledge sharing by sector associations. On the other hand, many businesses have already benefited from the nearly fully utilised fund. This seeming contradiction may readily be explained by the SME finance gap estimated at USD 5.9 billion in 2017 by the SME Finance Forum²⁰ and the finance gap for the corporate segment. While credit facilities extended to SMEs have increased from JOD 1,984 million in December 2016 to JOD 2,962 million in June 2022, including loans disbursed from the CBJ fund, the increase is insufficient to have significantly addressed the SME finance gap. Accordingly, even limited awareness has been sufficient to saturate available subsidised funding.

Table 3 Comparative analysis of available green financing sources

Key parameter	CBJ Subsidised Fund	JREEEF	Jordan GEF
Owner	CBJ	MEMR	EBRD
Budget	JOD 1.3 billion	JOD 20 million	USD 60 million (so far only Bank Al Etihad and Cairo Amman Bank signed up for each USD 10 million)
Sectors covered	Corporates/SMEs, including industry and renewable energy	Industry, agriculture, residential housing, and places of worship	Private companies, SMEs
Technologies covered	RE & those demanded by the industrial sector (not exclusively green technologies)	EE & RE	EE & RE, Circular Economy
Provision/service	Low interest loans, single loan size, maximum is JOD 3 million (JOD 4 million for energy sectors)	- Pay back the bank loan interest for corporates and SMEs (up to 4.5%) - Funding (30%) for Individuals (PVs, solar water heaters)	- Technical assistance for both the client and the bank - Cash bank incentives for clients on successful completion

²⁰ MSME Finance Gap Report dataset, SME Finance Forum, 2017. SME Finance Forum was established by the G20 Global Partnership for Financial Inclusion (GPFi) and is managed by the IFC. SMEs are defined as enterprises with 11-250 employees.

The only donor-backed green finance offering in the pipeline is from Bank Al Etihad and Cairo Amman Bank, utilising each USD 10 million facility from the EBRD's USD 60 million Green Economy Financing Facility in Jordan (Jordan GEF) to support the green economy transition in Jordan. Energy-efficiency, small-scale renewable energy, and water conservation projects, or other green capex investments meeting eligibility criteria would be eligible for financing²¹. Approved projects from eligible and creditworthy small corporates or SMEs may receive **up to USD 5 million in financing on each project**, benefit from technical support to develop green investment projects, and receive grants of up to **15% of the provided financing subject to independent verification** after implementation.

There are currently no donor-backed programmes providing technical assistance, noting that EBRD GEF at Bank al Etihad will be providing technical assistance to banks on financing green projects. In interviews conducted for this study, Islamic banks have expressed interest in technical assistance services related to green projects finance, as they have sufficient liquidity to have no need of additional funds and given their commitment too compliance with Sharia laws means they cannot access financing at interest from donors.

²¹ Sub-loans for the installation of products listed in the GEF Green Technology Selector (GTS) are pre-approved up to a uniform limit for creditworthy enterprises and their projects not subject to exclusion per the EBRD's Environmental and Social Exclusion List. Other projects would also be subject to technical assessment by local and international engineers.

3 Demand for Green Finance

Despite the absence of dedicated green financial products for the industrial sector in Jordan, demand for green business development services (Green BDS) allow for some degree of investigation of how projects related to environmentally friendly and recourse-efficient production methods were implemented and financed, as well as obstacles encountered. In a 2022 survey, conducted by GIZ, 241 medium- to large-sized businesses²² from five sectors – food-processing, textiles, chemicals, pharmaceuticals, and packaging – indicated their current and potential demand for such Green BDS. It demonstrated the significantly higher priorities placed on solar energy and resource efficiency in electricity compared with other green concerns such as water use, waste management or recycling. Respectively, 28% and 32% of respondents had completed or ongoing projects in solar energy and resource efficiency in electricity. Increasing awareness is reflected in further 44% and 41%, respectively, of respondents having planned projects in these fields. On the other hand, other green concerns trail energy by a significant gap with water efficiency as the next highest priority: of the respondents 18% had completed or ongoing projects and 15% had planned projects.

The disproportionate weight on energy can be explained by the high energy costs in Jordan compared with peers in the region and the high insolation levels enabling strong potential for solar energy, as well as the availability of the CBJ's subsidised funding only for renewable energy projects and not waste management or water efficiency. However, due to rapid expansion of renewable energy output straining the capacity of the power grid, permissions for new projects with capacities above 1 MW have been suspended since January 2019, decreasing demand for green finance to invest in energy generation. In July, MEMR announced criteria for the approval new energy investments above that threshold²³, which could stimulate demand for larger-scale renewable energy investments. According to the survey, many electricity efficiency projects were initiated without an energy audit to justify or guide, as only 12% of respondents had completed an energy audit with a further 3% having audits in progress.

It should be noted that 85% of respondents were exporters, underlining the importance of international value chains for medium- to large-sized industrial enterprises in Jordan. The share of exports in sales was above 50% for 38% of surveyed industries and was between 25-50% for another 15%. Exporters' exposure to international markets and green concerns of consumers in those markets may be to some extent driving their initiatives to implement green projects. Further, their ability to comply with international regulations and to access international value chains to be able to successfully export may indicate greater managerial

²² located in different regions in Jordan with at least 20 employees. With respect to annual turnover of the respondents, 29% were below JOD 1 million, 37% were between JOD 1-5 million and the remaining 34% were above JOD 5 million.

²³ Either a new industrial investment or the expansion of an existing investment is required, also conditional on exporting at least half of the output which should be produced with a workforce of which Jordanians compose at least 70%.

talent or expertise, which may also indicate higher likelihood to recognise benefits of green investment, to access technical assistance and to be bankable clients who are able to make successful loan applications.

Most industries responding to the survey (93%) expressed their need for technical support on green projects, however, despite 81% of them suggesting being willing to pay for at least part of the cost of such services, only 16% of them had retained consultants, primarily on energy related projects (85% share). In focus group discussions with industrial enterprises and semi-structured interviews with sector and chamber representatives conducted for this report, these findings were reinforced, as some respondents expressed not being fully aware of the benefits of green technologies for their business, and that advisory services and green audits were expensive and time consuming. Industrial enterprises that had received bank financing for their projects, mostly in renewable energy and energy efficiency, had received neither non-financial support, such as accounting consultation, insurance services, among others, nor technical advisory services from banks but agreed with their importance for green projects. To implement their projects, they either benefited from internal engineering teams or consulted external experts. Regardless of whether they had received bank financing to implement green projects or not, participants held that banks should provide consultancy and technical assistance services at affordable costs.

However, participating industries also expressed their concerns regarding reliability of vendors and service providers of green technologies as reasons not to invest. Increased government monitoring and control of service providers and introduction of professional liability may help businesses overcome their doubts. If professional liability is introduced, service providers would need liability insurance, which in turn would necessitate that insurance provider undertake capacity building to assess risks and determine coverage premiums. Some participants suggested that the existing partnership between the National Fund for Enterprise Support (NAFES) and the Amman Chamber of Industry (ACI) could be exploited to improve audit services. Without leading to immediate tangible results, audits provide enterprises with understanding of applicable green solutions, their feasibility and projected savings or other benefits to guide the development of proposals for green projects. Government support to raise awareness or incentives for investments were also sought by enterprises.

Once a decision to implement a green project is made, in the absence of green finance products offered on more lenient terms, demand for green finance is likely to be informed by the same challenges that SMEs in Jordan, including those in the industrial sector, typically face in accessing finance due to their above-mentioned shortcomings,²⁴ rendering them ineligible given banks' lending policies. While these shortcomings would explain the limited supply of credit, self-selection by enterprises also constrains demand making the issue intertwined. The EIB Bank Lending Survey of 2019 found that only 8.2% of SMEs

²⁴ Such as inadequate levels of tangible collaterals or guarantees, management experience, credit history, free cash flow for debt servicing and proper bookkeeping

had loan applications rejected which is still higher than the 3.0% average in the Southern Neighbourhood, however, 49% of SMEs that need finance are nevertheless discouraged from applying in the first place. While larger clients tended not to have reject loan applications, 59% were discouraged from applying for loans. Only 14.2% of SMEs and 28.2% of large clients had loans or credit lines from the banks.²⁵ Focus group participants affirmed barriers such as lengthy processes and collateral requirements required for approval and if approved, short loan tenor and high interest rates compared to profit margins in the industrial sector. While latter point may be due on the one hand to the higher business risk in lending to SMEs and on the other hand limited applicability of economies of scale for smaller enterprises, high interest rates constrain demand.

Credit facilities extended to the industrial sector stood at JOD 4.0 billion in June 2022, amounting to 12.5% of all credit facilities, of which mining accounted for 0.6%²⁶, well below its contribution to the GDP. On the other hand, the industrial sector accounts for 51% of the utilisation of the CBJ subsidised fund, which suggests that the sector was underserved by the banking sector and the fund has partly remedied that (see Table 4). Focus group participants communicated their expectations of greater flexibility in loan tenors and loan amounts of the existing CBJ fund, including higher loan amount guarantees from the JLGC with more favourable guaranteed rates and commissions.

Table 4 Industrial sector's share of credit facilities from banks ²⁷

	2016	2017	2018	2019	2020	2021
Credit facilities from banks (JD million)	2,491	2,979	3,420	3,650	3,762	3,653
Share of total credit facilities (%)	10.9	12.0	13.1	13.5	13.1	12.2

In the context of bank financing for green projects in the industrial sector, there are further barriers that were noted by participants, such as inadequate knowledge of and expertise in green financing in the banking sector, particularly with respect to their Relationship Managers. In focus groups, banks were considered unwilling to take risks of financing new technologies, however, industrial enterprises' concerns regarding reliability of vendors and service providers of green technologies implies they also consider such projects to have relatively higher risk. Accordingly, if green projects are evaluated without taking into consideration their environmental merits, they are likely to be or considered less attractive or viable investments by both banks and enterprises due to higher perceived risks.

²⁵ "Banking in Jordan: Financing Corporates and SMEs in the era of COVID-19, Evidence from the EIB Bank Lending Survey", the EIB, 2022.

²⁶ CBJ Monthly Statistical Bulletin, August 2022

²⁷ CBJ Monthly Statistical Bulletin, August 2022

4 Conclusions and Recommendations

Already today, Jordan's industrial sector is crucial for the national economy in terms of its contribution to GDP and current account, as well as number of high productivity of jobs provided in the sector. As the Jordanian government announced the *Economic Modernization Vision 2033*, industrial enterprises are expected to act as drivers for sustainable growth, making the sector become yet more important. On the other hand, as risks due to climate change and resource scarcity and consequentially the necessity to transition to sustainable production become more widely recognised, the industrial sector will need to improve their understanding of how they need to adapt their processes to be more environmentally friendly and resource efficient.

To implement this transition, industrial enterprises will need to undertake green investment projects, for which they would benefit from specially tailored finance from the banking sector. However, in terms of its share of credit facilities from banks, the sector appears to have been underserved, as many SMEs and large enterprises do not have bank loans, but further the sector's share of facilities is significantly below its share of the GDP. This issue has been addressed to some extent with the sector receiving a greater share of the subsidised funding from the CBJ, however, the green transition is likely to require more financing, underlining the finance gap. As expressed in the focus groups and interviews conducted for this study, the banking sector needs to better understand the needs of the industrial sector and assign relationship managers dedicated to the sector. It was also revealed that Islamic finance is required by some enterprises in the industrial sector. Accordingly, Islamic banks should also be included in the supply of green finance.

With respect to the green transition, however, both sectors express lacking sufficient knowledge and understanding of climate change, environmental risks, and green technologies and that they would need to access external expertise. However, both sectors are also not convinced about the reliability of suppliers of green technologies or technical consulting services. Accordingly, on the cusp of this transition, both sectors will need awareness raising and capacity building to assess investment projects or access a trusted ecosystem of vendors and service providers to ensure widespread recognition of the kinds of projects that can help the industrial sector to transition to a more sustainable model and for banks to develop and offer green finance products to enable them. Both enterprises in the industrial sector and banks need to expand beyond solar energy, which is often the only green technology with which they are familiar and which they are willing to invest in or to finance.

Measures such as training delivered to professionals from Green BDS consultancy firms or additional qualification and monitoring of vendors by the government or sector associations would help address concerns about reliability of the offering. Another alternative to achieve similar results could be the introduction of professional liability for vendors to alleviate concerns of both industrial enterprises considering investments and banks considering providing financing. Insurance coverage for vendors

would then be necessary to ensure the supply of products and services, with insurance companies needing to build up capacities to assess the vendors and determine appropriate risk-based premiums.

Other stakeholders should also assume greater roles to support both enterprises and banks in realising this green transformation. Sector organisations and chambers of industry should undertake efforts to disseminate information about green technologies, available green finance offerings and reliable vendors and service providers, as well as conducting or organising capacity building activities. Government entities should develop programs and incentives aligned with national strategies, as well as removing obstacles to implementing green investments and preparing the labour force for the green transition.

The banking sector also needs additional regulation and guidelines to incorporate environmental risks into their risk management frameworks. CBJ's membership in the SBFN and NGFS international networks should provide any necessary support in developing appropriate regulation and guidelines. Banks will also need to develop appropriate policies and procedures to comply with regulation and guidelines once they are promulgated. Specialised green financial instruments such as green bonds or stocks may also help provide financing for green projects and the green transition.

To create a vibrant market for green finance, that can enable the industrial sector's green transition, there are several steps that **key stakeholders** should undertake as follows:

Industrial Sector

1. Bridging the knowledge gap on how to adopt green technologies and solutions may reduce the risks due to climate change and other environmental risks and increase their production efficiency to also improve their businesses.
2. Raising awareness within the industrial sector about banking products available to enable such investments, and to improve access to finance through better understanding of conditions to fulfil, or rules and procedures to follow to request credit as well as to manage once credit has been approved.
3. Raising their capacity to become bankable and eligible to obtain credit facilities, if not already so, in terms of proper bookkeeping, holding bank accounts and building credit histories.

Banking Sector

1. Banks need to develop inclusive green finance products for the industrial sector rather than only renewable energy products. Renewable energy investments are not perceived to be risky as the impact is seen directly after installation in almost certain cost savings. On the other hand, other green projects are perceived risky due to limited familiarity.
2. Banks need to consider more flexible terms and conditions when developing green finance, with more competitive interest rates and longer tenors.

3. A review of the banks internal strategies, policies and procedures and proper marketing are needed to achieve the desired results with green finance products.

Policy-Makers and Shapers

1. Developing incentives for green investments to the industrial and/or the financial sector, aligned with current strategies on energy, water and waste management.
2. The CBJ should revise their subsidised fund to include green loans rather than only renewable energy. It is also recommended to streamline loan processes and increase loan ceilings for larger industrial enterprises and increase group limits for enterprises that are parts of groups.
3. Sectorial dialogue between banks and industrial firms should be improved. As an example, ABJ and JCI can together facilitate workshops and networking events to bring the two sectors together and disseminate information. Banks could undertake marketing studies on which they could develop green financial products appropriate to and affordable for the industrial sector.
4. CBJ and ABJ should organise intensive trainings to relationship managers at banks as the banks expressed that they had inadequate knowledge of green products and consequently lacked capacity to train employees about them.
5. ABJ or CBJ should, as needed, support Islamic banks to develop and market green sustainable Islamic products as some enterprises would only consider Islamic products.
6. A green ecosystem of providers of green business development services and vendors for green technologies should be developed. This can be achieved by gathering information about green vendors and service providers to be made available to the industrial sector by chambers and other sector organisations or through increased monitoring by government entities. Otherwise, professional liability may be induced on vendors and service providers. Clear communication and visibility should be ensured through chambers and at conferences and events.
7. More broadly, increasing the limits on loans covered by JLGC guarantees to address inadequacy of collateral to allow larger loan amounts demanded by the industrial sector.

5 Annexes

5.1 Annex No. 1 – List of Focus Group Interviews – Banking Sector

Institution	Jordan Time	Date
Bank al Etihad	8:30 - 9:00	24.07.2022
Capital Bank	8:30 - 9:00	
Housing Bank	9:30 - 10:30	
Housing Bank	9:30 - 10:30	
Jordan Islamic Bank	10:15 - 10:45	
Jordan Kuwait Bank	12:00 - 13:00	
Jordan Kuwait Bank	12:00 - 13:00	
Arab Bank	14:00 - 15:00	
Arab Bank	14:00 - 15:00	

5.2 Annex No. 2 – List of Focus Group Interviews – Industrial Sector

Institution	Jordan Time	Date
JCI	9:30 - 11:00	26.07.2022
JO Petrol		
JO Petrol		
Al Hassad Plastic Company		
Siniora Food Industry		
Gulf Technical Industrial Est GEPICO		
KADDB	11:30 - 13:00	
KADDB		
Alsaha for Electrical Systems		
Abdin Industrial - Commercial Refrigeration & Kitchen Equipment		
Ram Pharmaceutical Industries Co		
Bait Al Maqdis for digital printing	9:30 - 10:00	28.07.2022
Jordan Association of Pharmaceutical Manufacturers (JAPM)		
Jordan Association of Pharmaceutical Manufacturers (JAPM)	10:00 - 11:00	28.07.2022
JCI Sector Representative	10:00 - 11:00	9.08.2022
JCI Sector Representative	11:00 - 12:00	31.07.2022
JCI Sector Representative	10:00 - 11:00	7.08.2022

5.3 Annex No. 3 – Questionnaire for the Banking Sector

Part 1: General information on green finance: Loan Characteristics & Products (Availability of green products for the Industrial Sector, Yes or No) if No move to Part 2		
1. What are your “green” or “sustainable” financial Products for the industrial sector (if available)?		
2. What exactly does your green product cover? Please elaborate		
Donor-funded schemes? e.g., EBRD, AFD....	Please Elaborate	
National EE/RE fund, e.g., CBJ, JREEEF		
guarantee scheme (national Level)		
guarantee scheme (international financial institutions)		
Technical assistance		
Training the employees (branches & RMs)		
3. Do lending terms differ for green projects? For example, the interest rate, loan size, collateral, insurance or grace period, or risk mitigation measures applied for green projects (e.g., energy performance contracting, emission reduction delivery guarantees)?		
Part 2: Bank’s Readiness		
4. Does your strategy include green aspects?		
5. Does the bank have policies and procedures for green finance?		
6. Do you have the Capacity to assess green Finance?		
7. Do you partner with any vendors / manufacturers / or services related to green products? (e.g., providers to technology such as Izzat Margi, Smart buy...		
8. Do the bank have the capacity to train the employees and adopt new green products for the industrial sector?		
Part 3: Motivations, Drivers and Bottlenecks		
9. What do you think? Can the bank develop green finance products for the industrial sector and calculate the instalments from the monthly saving?		
10. In your opinion what is the support needed (from CBJ) to encourage green lending?		
11. From your experience what are the suitable financial & non-financial requirements provided by the bank to increase the industrial sector green lending market share?		
Examples:		
Special Marketing & Products	RMs incentives	Agreements with Vendors
Trade Finance	Clients’ incentives	Trainings the employees
Working Capital Loans	Portfolio guarantee	Raising Awareness
Long term loans	Technical assistance for clients	
12. What are the challenges facing the bank in regards financing sustainable green projects?		
13. Final Note: What do you need to develop and sell green products for the industrial sector?		

5.4 Annex No. 4 – Questionnaire for the Industrial Sector

Part 1: The current green investment Assessment and opportunity			
1.	Do you have any green technologies (Recourse efficiency Investments and environmentally friendly production Methods) at your industry?		
2.	If yes, what was the source of this investment		
3.	If no, what hinders you from installing green technologies (Recourse efficiency Investments and environmentally friendly production Methods)?		
4.	Do you have estimation on cost reduction for adapting green practices? If so, is there reliable companies provide such a service?		
5.	Is it easy to access reliable green technologies (Recourse efficiency Investments and environmentally friendly production Methods) in Jordan, do we have sufficient variety of products?		
6.	What financial or non-financial support was obtained when the green technology (Recourse efficiency Investments and environmentally friendly production Methods) is installed? If you are dealing with a bank, please provide details.		
7.	Do you see any business opportunities or Benefits arising from green investments solutions (Recourse efficiency Investments and environmentally friendly production Methods)?		
Part 2: Challenges and barriers			
8.	From your own point of view what are the challenges for the industrial sector to become green?		
9.	From your own point of view what are the challenges for the industrial sector to obtain financial service from the banks or other financial Institution?		
Part 3: Future expectations			
10.	From your experience what are the suitable financial & non-financial services provided by the bank to increase their green lending market share?		
	Examples:		
	Marketing and Introducing the Products to the Industrial Sector	Special team from the bank to assess the projects	Agreements with Vendors
	Trade Finance	Client's Incentives	Trainings for the Clients
	Working Capital Loans	Portfolio Guarantee	Raising Awareness
	Long Term Loans	Technical Assistance	Larger Loan Amounts
11.	Final Note: What do you need to adapt green products and request support from the banking sector?		

5.5 Annex No. 5 – Recommendations

Area	Challenges perceived	Recommendations
Awareness and training	Lack of awareness of green opportunities and green projects in Jordan within the industrial sector.	<ul style="list-style-type: none"> • Raising awareness within the sector through the different industrial chambers. • Capacity Building and trainings to the banking sector, Raising awareness. • Raising the capacity of its engineering department in green project valuation.
	Capacity, expertise and knowledge of staff either in branches, SMES, Corporate or the engineering department on how to manage risks related to green finance, lack of clear regulations and/or policies and procedures in particular, lack of sufficient data on the subject of green finance, unwillingness and/or ability of bank customers (large corporate borrowers SMEs) to make changes in the business model to reduce the risks green finance.	
Cost of loans	The bank's interest rate from the clients' point of view is relatively high. This applies on both commercial and Islamic banks.	Banks to approach more competitive loan pricing such as CBJ fund and international donors' funds.
Product and Marketing	Lack of marketing and spreading the awareness of the current green products.	<p>Banks to review their internal strategy, policies, and procedures to include green finance in addition to working on the following:</p> <ul style="list-style-type: none"> • Green new products. • Being a role model and adopting green technologies. • Marketing green products and creating the need. • Loan applications with longer payback period to be studied on case-by-case bases. • Having special products for the agricultural sector or encouraging the concerned governmental entities in financing the agriculture sectors. • CBJ to develop green loans and to review fund terms and conditions (tenor, amount, etc.) with allowing justified exceptions, and reviewing the loan processes. • Developing suitable Islamic products.
	Green loans tenors are short compared to the investment payback periods, especially in the case of start-up companies.	
	Some industrial sectors work closely with the agriculture sector. This sector is underserved from banks, and therefore additional challenges would arise for the industrial sector.	
	The CBJ subsidized fund covers Renewable Energy projects and industrial sector fund, it doesn't explicitly mention Green Projects.	
	Larger limits of the CBJ fund are requested to serve the commercial and corporates not only SMEs. Reconsider the group limit exposure (sister & mother companies), this decreases the loan limit eligible for the client.	
	CBJ fund: In case the loan needs restructuring or rescheduling, the tenor is always fixed and remains the same.	

Area	Challenges perceived	Recommendations
	<p>CBJ fund: Lengthy approval process, as it is on case-by-case bases, in addition to some conditions not accepted by the clients, such a promissory note to be signed by the client covering 120% of the loan amount.</p>	
	<p>The absence of Islamic green financing for the industrial sector.</p>	
Technical Assistance	<p>The high cost of energy audits, green studies, LEAD & EDGE certifications.</p>	<p>Dedicate a part of the subsidized fund to pay the technical assistance costs.</p>
	<p>Missing a unified source of reliable information in some specific technologies.</p>	<p>Clear standards and processes, organization of the service providers from JCI.</p>
Collaterals and loan guarantees	<p>Collateral requirement from the banks.</p>	<ul style="list-style-type: none"> • Developing green products where the cost saving after instalments would cover the loan instalments. • Review the loan limits; increase for larger businesses. • Review the commissions schemes.
	<p>Limited loan coverage from JLGC. The maximum loan amount accepted for the industrial sector is JOD 1 million, with a coverage of JOD 800K.</p>	
	<p>JLGC commissions are considered high, averaging 0.75%. The client needs to pay the JLGC commission in addition to the bank's interest rate.</p>	
Government related	<p>The limited capacity of the RE in the electricity grid is the main challenge to obtain the approvals for renewable energy investments, in addition to not having regulated ESCO services.</p>	<ul style="list-style-type: none"> • Prepare the workforce in green sectors such as clean energy, green industry, and environmental goods and services. • Prepare Kingdom-wide plans to confront climate change and tighten control procedures with authorities responsible for protecting the environment on production units in line with preservation goals. • Regulations to be aligned with the national strategy. • Incentives for the industrial sectors to become green.
	<p>Limitation of some governmental programs and lack of awareness of such programs.</p>	
	<p>Lengthy governmental process and approvals in some green cases.</p>	

5.6 Annex No. 6 – International Development Finance Programmes

5.6.1 Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

The Energy Unit at the Jordan Chamber of Industry collaborated with GIZ to run the Energy Efficiency Networks Project to support the principle of joint work and cooperation to achieve energy efficiency within member factories of the same network. The programme facilitated the exchange of experiences, knowledge, and international best practices on the applications of energy efficiency and renewable energy measures, in addition to presentation of success stories in applying the best principles of energy management in industrial facilities. 75 factories participated in the programme.

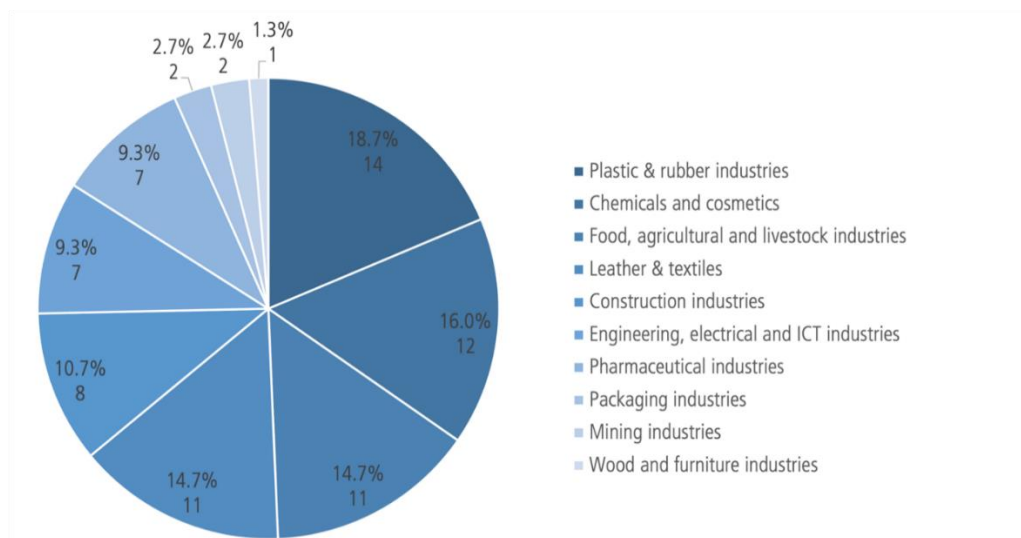


Figure 1 Distribution of participating factories by sector

5.6.2 United Nations Industrial Development Organization (UNIDO)

UNIDO's SwitchMed initiative aims at changing the consumption and production of goods and services in productive, circular economies to enable human development without environmental degradation in 8 countries in the Southern Mediterranean, including Jordan. Programme activities include policy development, demonstrations, and networking opportunities. Most relevant to the present project are the demonstration of the effectiveness of green investments, conducted under the MED TEST II and MED TEST III programmes.

The Transfer of Environmentally Sound Technologies (TEST) methodology developed by UNIDO provides a systematic way of identifying and exploring the most feasible interventions with respect to their potential for resource efficiency and continuous improvement of the use of materials, water, and energy within a company, building on its specific needs and internal capacities. It combines the essential elements of a set of tools for sustainable production, namely Resource Efficient and Cleaner Production Assessment (RECPA), Material Flow Cost Accounting (MFCA) and Environmental and Energy Management Systems (EMS/EnMS) within the framework of the Deming learning cycle (Plan, Do, Check, Act).

The Royal Scientific Society (RSS) collaborated with UNIDO in the MED TEST II project to demonstrate the effectiveness of the Resource Efficient and Cleaner Production (RECP) / TEST methodology to power national economic development, social progress, and environment protection through improved efficiency in energy and resource use and enabling opportunities for innovation and value creation. The project was a huge success and achieved very important results in energy, material, and water saving and reduced greenhouse gases, which reduced production costs and increased local industries' competitiveness with imported similar products while having a positive social and economic impact. 12 participating businesses were able to identify 234 RECP measures, allowing them to reduce their annual water and energy consumption by 63,844 m³ and 22.2 GWh, respectively, reducing CO₂ emissions and raw material use by 8,086 tonnes and 404 tonnes, respectively. In addition to demonstrating the potential for more efficient use of resources, the positive economic impact was also demonstrated as the identified savings could be realised with investments totalling 3.6 million euros with an average payback period of 1.7 years and accumulate annual savings worth 2.1 million euros.

With these results, it has been demonstrated that this methodology can support the long-term sustainable development of Jordan. Further phases would be needed to explore the effectiveness and economic growth potential of RECP/TEST methodology in additional industry sectors, companies, and service providers. Accordingly, RSS and UNIDO launched a second phase of the project, named MED TEST III, in partnership with Amman Chamber of Industry, and support from the Ministry of Industry, Trade and Supply and the Ministry of Environment. 10 companies from the chemical, plastic sector and food and beverage sectors and 10 service providers have signed agreements to participate in the project. MoUs have been signed with the University of Jordan, the Mutah University, the Al-Hussein Bin Talal University, the German Jordanian University, and the Princess Sumaya University for Technology to integrate RECP and TEST methodology into academic curricula.