



Project Information Document (PID)

Concept Stage | Date Prepared/Updated: 11-Jan-2023 | Report No: PIDC34678



BASIC INFORMATION

A. Basic Project Data

Country Türkiye	Project ID P179255	Parent Project ID (if any)	Project Name Türkiye Green Industry Project (P179255)
Region EUROPE AND CENTRAL ASIA	Estimated Appraisal Date Feb 27, 2023	Estimated Board Date May 26, 2023	Practice Area (Lead) Finance, Competitiveness and Innovation
Financing Instrument Investment Project Financing	Borrower(s) The Scientific and Technological Research Council of Türkiye (TUBITAK), Ministry of Treasury and Finance, The Small and Medium Enterprise (SME) Development Organization of Türkiye (KOSGEB)	Implementing Agency Ministry of Industry and Technology	

Proposed Development Objective(s)

The PDO is to support a sustainable and efficient green transformation for industrial firms in Türkiye.

PROJECT FINANCING DATA (US\$, Millions)

SUMMARY

Total Project Cost	450.00
Total Financing	450.00
of which IBRD/IDA	450.00
Financing Gap	0.00

DETAILS

World Bank Group Financing

International Bank for Reconstruction and Development (IBRD)	450.00
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Environmental and Social Risk Classification

Moderate

Concept Review Decision

Track I-The review did authorize the preparation to continue

A. Introduction and Context

Country Context

- Türkiye has made considerable development progress but structural challenges and repeated macroeconomic shocks can impede growth and the green transition.** Rapid economic growth tripled income per capita to a high of \$12,000 in 2015, making Türkiye the world's 19th largest economy. Robust economic activity in the first half of 2022 was driven by strong private-sector and export performance and loose monetary policy despite soaring inflation, a weakening currency, and a widening current account deficit. GDP growth is expected to moderate to 4.7 percent in 2022, with a risk investor confidence may falter, intensifying pressure on the Lira and corporate and bank balance sheets. Despite a strong jobs recovery, post-Covid poverty rates are receding slowly as lower-income households' budgets are hit by rising energy and food prices.¹
- Despite the economic recovery in 2021, the poverty rate is projected to remain above pre-2019 levels due to persistently high inflation.** Inflation affects the lowest income households the most as they spend a higher share of income on items like food that face higher than average inflation. In September 2022, consumer price inflation reached a two-decade high of 83.45 percent year-on-year. Projections using an updated upper-middle-income country poverty line of \$6.85 per person per day (2017 PPP terms) estimate the poverty rate falling from 11.7 percent in 2021 to 11.4 percent in 2022 and 11.1 percent by 2024. External risks remain elevated, given the growing current account deficit, high share of public debt in foreign currency, low foreign exchange reserves, high external financing requirements and continued monetary loosening amid tightening global liquidity.²
- There has been a strong labor market recovery since COVID-19. The total unemployment decreased to 9.6% in August 2022, which is the lowest level in almost a decade** (8.2% for males and 12.5% for females). Unemployment among youth (15-24 age) also decreased to reach 18% in the same month (15.2% for males and 23.3% for females), but it remains relatively high.³ High labor informality persists, and, with a few exceptions, jobs are growing faster in low-productivity sectors. Achieving sustained economic growth would require a faster jobs growth in higher-productivity sectors.
- Türkiye's geographic, climatic, and socioeconomic conditions make it highly vulnerable to the impacts of climate change and other environmental hazards, making climate adaptation and resilience high priorities.** Türkiye has high vulnerability on 9 out of 10 climate vulnerability dimensions, compared with a median of 2 out of 10 in other Organization of Economic Co-operation and Development (OECD) countries. Its transport system is more vulnerable than those of comparator countries, and the country is also experiencing food security issues, increasing water stress and unprecedented disasters, such as the devastating forest fires of 2021. This vulnerability is due to a combination of climate factors, population exposure (for example, the share of the population exposed to floods and forest fires), and socioeconomic factors (such as the share of agriculture in the economy).

¹ World Bank Macro Poverty Outlook (MPO), October 2022

² TURKSTAT, Sept 2022

³ TURKSTAT, August 2022



Sectoral and Institutional Context

5. **The Turkish manufacturing industry has recorded significant growth in recent years. The total number of registered industrial enterprises in Türkiye is 164,000;** about half of them are concentrated in 5 provinces and 5 economic activities, and 30% of them are in organized industrial zones. The share of industry in GDP has increased from 19.3 percent in 2002 to 22.1 percent in 2020. Manufacturing, which accounts for 87 percent of industrial production, corresponded to 19.1 percent of GDP in 2020. The production value of the manufacturing industry increased yearly by 16.8 percent in the 2009-2020 period and reached a level of 2.8 trillion TL in 2020. Food products account for 14.4 percent of total manufacturing production value, followed by basic metals with 11 percent, motor vehicles with 9.1 percent, textile products with 8.3 percent, and fabricated metal products with a share of 6.5 percent. These top 5 activities with the highest sales revenues are also the ones with the highest export revenues.⁴

6. **Following the pandemic-induced lockdowns of spring 2020, Türkiye's merchandise exports began recovering in June 2020. The steady and robust recovery in merchandise exports since June 2020 continued throughout 2021. Exports were 43 percent higher than the 2019 average.** Strong export performance has continued into the first half of 2022, especially to the EU. Textiles and clothing accounted for 16 percent of exports in January-July 2021 (the highest of any product category), while machinery and electronics as well as metals accounted for 15 percent of exports each. Another important export industry that has expanded post-pandemic is transportation – it accounted for 13 percent of exports in January-July 2021 and increased by 25 percent compared to the same period of 2020. Exports of food and beverages, the sector with the lowest export performance, increased by 11 percent year-on-year. Export growth in 2021 was mainly driven by an expansion in exports of existing country-product lines (i.e., intensive margin of trade) with a smaller contribution of exports of existing products to new destinations (i.e., product diversification in established markets).

7. **Export growth in 2021 was driven by exports to the United States, Germany, Italy, and the United Arab Emirates, which accounted for 27 percent of export growth.** The European Union is Türkiye's most important trading partner and was the largest contributor to export changes over the 2020-21 period. Turkish exports of goods to the EU were US\$93 billion in 2021 (41% of total exports). The main partner country for exports in the EU were Germany, Italy, and Spain with around 19.3 billion, 11.4 billion, and 9.6 billion dollars respectively.⁵ The United Kingdom is another important trading partner that contributed positively to export growth. The Middle East and North Africa is the second most important region for Türkiye's recent export growth. The average contribution of the region to overall export growth has been around 10 percent during the March-July 2021 period.⁶

8. **Along with manufacturing and exports growth, environmental challenges are also mounting. Türkiye's greenhouse gas emissions increased by over 130% between 1990 and 2020 and reached 524 million tons of CO2 in 2020.** About 63 percent of CO2 emissions were derived from energy, 22 percent came from manufacturing activities alone, 12 percent were derived from agricultural activities and 3 percent – from waste. The total CO2 emissions of the manufacturing sector was approximately 127 million tons in 2020. Among the manufacturing sector, the major polluting sectors are non-metallic minerals, iron and steel, chemicals, textiles, food, and tobacco. In addition, water consumption is also high in industrial activities, calculated at 2,898 million m³ in 2018. The top 5 water consuming sub-sectors are basic

⁴ Turkish Ministry of Industry and Technology

⁵ TURKSTAT, 2021

⁶ Turkey Economic Monitor, Feb 2022



metals, chemicals, textiles, food products, and non-metallic minerals, which all together account for more than 93.6 percent of the manufacturing industry's water consumption in Türkiye.⁷

9. **The Green Deal will strongly influence Türkiye's trade and investment relationship with the EU, including in the context of its customs union with the EU.** Given that Türkiye's manufacturing is more carbon-intensive than OECD and EU averages (in 2019, the primary energy intensity for Türkiye was 0.145 TOE/unit of GDP in 2015 US\$, while for the OECD it was 0.105 and 0.088 in the EU⁸), the impacts of the EU's CBAM will be significant, especially on steel and aluminum initially, and are expected to negatively affect chemicals, petroleum, and mineral products (cement), if CBAM coverage is expanded. These sectors' exports to EU could drop between 15 and 23 percent, depending on the specific sector, if no action is taken.⁹ However, the CBAM creates an opportunity for Türkiye's industry to benefit in markets where competitors are more carbon-intensive, such as electric mobility, global solar and wind energy value chains. The Ministry of Industry and Technology (MoIT) is responsible for the implementation of 9 out of 81 actions under the Green Deal Action Plan, which aim to reduce greenhouse gas emissions in manufacturing activities, which may be affected by CBAM.

10. **The World Bank Climate Change Development Report (CCDR), published in in June 2022, recommends a resilient and net zero pathway (RNZP) that combines adaptation and resilience actions with the 2053 net zero pledge.** According to the report, Türkiye would need to invest an additional \$68 billion over 2022–30 (in present value terms) in the RNZP; that is 1.0 percent of discounted cumulative GDP over the period. Over 2022–40, this number grows to \$165 billion, or 1.2 percent of discounted cumulative GDP. As one of the major sources of GHG emissions, the manufacturing sector needs major investments (estimated at US\$11 billion) and capacity building to maintain or further enhance its competitiveness, especially given the increasingly tightening environmental, social and governance (ESG) standards in the global market.

11. **The Turkish industry needs a holistic, well-designed, assertive, and innovative upgrading approach that leverages green technologies and supports the green transformation of industrial firms.** The following Heat Map (Table 1) indicates that each sector has its own pros, cons, and comparative advantages. The chemicals, metal products, rubber and plastics, and cement sub-sectors deserve serious attention in terms of their GHG emissions, high export volumes and intense employment structure. The food, textiles, chemicals, metal products, and cement sectors are the ones that consume high amounts of water. The motor vehicles, electronics, and machinery and equipment sectors, which are all high- or medium-tech sub-sectors, present significant opportunities thanks to their economic complexity, embedded know-how and green product potential.

12. **Despite these challenges and opportunities, the green transformation of private sector activities is still lagging in Türkiye.** Based on the World Bank 2022 CCDR report, only 35 percent of firms surveyed had upgraded machinery, equipment, and other assets in the period 2016-2019, while 20 percent of firms surveyed had made improvements to heating, cooling, and lighting systems, and 13 percent leveraged circular economy practices, such as waste reduction, recycling, and management.¹⁰ Turkish firms' green management practices are also falling behind.

13. **The reasons for the slow pace of response from the private sector are multi-faceted market failures and constraints.** These include, but not limited to, the following: 1) Turkish firms do not consider green investments as a growth priority, with concerns about profitability as well as lack of means of finance. In this regard, SMEs are more likely

⁷ MoIT, 2018

⁸ Türkiye Department of Energy Efficiency and Environment, "Primary and Final Energy Density", November 2021.

⁹ World Bank, 2022, "Impact on Türkiye of EU adopting Carbon Border Adjustment Mechanism (CBAM)", ECA Region.

¹⁰ Ibid.



to cite lack of financing than large firms,¹¹ and female owned businesses have less accessibility to loans (25.2 percent) compared to male led firms (35.2 percent) in Türkiye;¹² 2) The lack of information/evidence about the positive impact of investing in ESG standards on the firms' competitiveness and long-term performance; 3) High costs of upskilling/reskilling of the existing labor force. Türkiye has a lower share of green jobs and a higher share of both brown jobs and jobs that require upskilling for the green transition than its peers in Europe and Central Asia. The manufacturing sector is characterized by many subsectors with a high share of brown jobs. These costs are magnified by skills mismatches and other types of rigidities, including high hiring, and firing costs.¹³ In Türkiye, this is compounded by already low labor force participation, which is 52 percent overall, and only 34 percent for women (seasonally adjusted as of February 2022), and a national mandatory minimum wage that is high compared to the median OECD wage.¹⁴ 4) Untested markets for new green products increase the risk of failures.

Relationship to CPF

14. The project is consistent with FY18-21 Country Partnership Framework (CPF) for Turkey discussed in July 2017, and recently extended through the Program and Learning Review (PLR, Report No. 142353-TR, February 2020). Specifically, the Project is well aligned with the CPF's Focus Areas 1 (Growth) and 3 (Sustainability) and would support the following CPF objectives:

15. CPF Objective 3: Enhanced Competitiveness and Employment in Selected Industries. According to the CPF, to create the jobs needed to employ the rapidly growing labor force and raise it to a higher income level, Turkish businesses need to improve their competitiveness through innovating, boosting productivity and moving up the value chain. To support these aims, the CPF foresees potential lending related to innovation, technology absorption, cleaner production, and an improved business environment. The CPF also highlights the IFC's aim to improve the competitiveness, productivity, and sustainability of Turkish manufacturers through development of green activities.

16. CPF Objective 7: Improved reliability of energy supply and generation of green energy. One of the CPF's objectives is to stimulate further private sector energy investments, in areas related to renewable energy and energy efficiency. The project contributes to this objective by focusing on increasing the energy efficiency of manufacturing activities.

17. The project is fully aligned with the CCDR recommendation to adopt a resilient and net zero pathway that can help Türkiye achieve its development and climate objectives but implies a significant departure from current trends and important policy changes. Boosting resilience and adaptation requires a whole-of-economy strategy and a supportive socioeconomic environment. The resilient and net zero pathway prioritizes supporting adaptation in the private sector by ensuring access to information, technology, and finance. The Project are focusing on addressing gaps in these three areas to support the green transition of manufacturing firms.

B. Proposed Development Objective(s)

The PDO is to support a sustainable and efficient green transformation and growth for industrial firms in Türkiye.

Key Results (From PCN)

¹¹ World Bank. 2019. Turkish Enterprise Survey.

¹² World Bank, Türkiye Enterprise Survey 2019

¹³ OECD. 2020. Employment Outlook 2020. www.oecd-ilibrary.org/sites/1686c758-en/1/3/3/index.html?itemId=/content/publication/1686c758-en&_csp_=fc80786ea6a3a7b4628d3f05b1e2e5d7&itemIGO=oecd&itemContentType=book#.

¹⁴ World Bank. 2022. Turkey Country Climate and Development Report (CCDR).



1. Increase in the efficiency of electricity use by beneficiary firms (total electricity consumption/total output, %)
2. Increase in the efficiency of water use by beneficiary firms (total water consumption/total output, %)
3. Decrease in the uncirculated waste of beneficiary firms (share of total waste, %)
4. Private sector investment mobilized in green technologies, (US\$), including women-led firms
5. Number of innovative green efficiency solutions introduced by supported beneficiary firms partnering with STIs, number

D. Concept Description

18. MoIT, Directorate General of Industry, has requested World Bank support in designing a project to support the green transition of industrial enterprises. The project aims to support industrial exporters to align with new requirements in export markets (e.g., CBAM, the Green Deal, the circular economy action plan, EU product directives), and for Turkish industrial firms to be better connected to green global value chains, develop new green products, and be better equipped to adapt to climate change impacts and adopt relevant mitigation solutions. In specific, the Government of Türkiye has requested this project to support MoIT in the implementation of their committed actions under Türkiye's Green Deal Action Plan.

19. The project will support manufacturing firms to use resources more efficiently and innovate in their management, production process, and/or products to meet future market demand. The project will leverage the existing expertise and mechanism of key relevant organizations – under the umbrella of MoIT- in the implementation of the project. It will also leverage opportunities for “greening” firms (and clusters) connected to GVCs and firms within Green OIZs.

The project will comprise three components, described below.

20. Component 1: Support manufacturing SMEs improve their energy and resource performance and reduce their carbon emissions (US\$265 million). The component will support manufacturing SMEs in adopting green transition plans to improve their resource efficiency (with a focus on energy, water, and waste management efficiency). The component will raise the awareness among SMEs about the current and future sustainability requirements in local and export markets, potential technologies to improve firm's sustainability and their expected impact on firms' performance, and recommended standards for green sustainability (such as international green product certification – ISO 1406715 or equivalent - to facilitate integration in global value chains). The component will provide reimbursable grants to finance 50-70% of SMEs' plans for upgrading their machinery, acquiring new technologies, attaining technical assistance, obtaining green certifications, and/or other interventions to facilitate a transition towards a more resource-efficient industry and circular economy. The Small and Medium Enterprise (SME) Organization of Türkiye (KOSGEB) will manage the implementation of component, building on their experience in providing reimbursable grants to SMEs throughout Türkiye, under the ongoing Bank-funded Rapid Support to Micro and Small Enterprises project, combined with awareness and advisory services to coach SMEs through implementing their green transition plans. KOSGEB will oversee running an application platform, screening SME applications for support along eligibility criteria, and checking that applicant SMEs have no outstanding tax and social security obligations and have registered a minimum revenue threshold for the preceding fiscal year. Technology lists for each manufacturing subsector will be developed jointly with MoIT, TUBITAK (including TUBITAK MAM), and the Turkish Standards Institution (TSE), and utilized by KOSGEB in the approval process.

21. Component 2: Support the green innovation of firms (US\$160 million). The component will target all types of firms that are engaged in green innovation activities, which include developing new green technologies, products, or processes

¹⁵ ISO 14067:2018 Greenhouse gases — Carbon footprint of products: quantification and reporting of the carbon footprint of a product (CFP), in a manner consistent with International Standards on life cycle assessment (LCA)



that are novel in Türkiye or other markets. The eligible firms could be start-ups, SMEs, or large firms. The component will also support consortia of firms (each typically comprises a large firm and a few SMEs and, in many cases, academic institutions). The eligible activities include research and development, prototype development, standards development, and new product or process development that contribute to greener production or higher energy and/or resource efficiency. The component will provide reimbursable grants to finance 50-70% of firms’ plans for implementing green R&D activities, acquiring new or upgrading existing machinery, licensing new technologies, hiring R&D personnel, attaining technical assistance, developing prototypes, filing patents, developing/certifying green standards, and other relevant activities. TUBITAK will manage the implementation of this component, building on their long experience in financing firms, platforms of firms, and startups to diversity into new products, increase R&D activities, and adopt innovate green solutions and technologies detailed in their transition plans.¹⁶ Similar to component 2, TUBITAK will manage the application process, using firm eligibility criteria and lists of innovation activities eligible for funding. Applicant firms or consortia of firms will have to provide their investment proposals and funding decisions will be made by a panel of experts from different organizations, including also international experts and/or scientists with relevant experience in R&D and other innovation activities. TUBITAK plans to provide grants and matching grants to research institutes, universities, and innovative startups from its own resources, to further support these segments of beneficiaries.

22. Component 3: Technical assistance and project management (US\$25 million). This component will provide technical assistance and capacity building for MoIT (DG Industry) and finance the establishment of a Project Implementation Unit (PIU) to manage the implementation of project activities. The PIU will work in collaboration with key implementing partners, including KOSGEB, TUBITAK, TSE and others. The PIU will develop a Project Operations Manual (POM) to define the eligibility criteria of beneficiaries, eligible activities/expenditures, industry-level indicators, range of targets, a green technology taxonomy,¹⁷ firm level diagnostics and planning, baseline establishment, and monitoring and evaluation requirements.

Legal Operational Policies	Triggered?
Projects on International Waterways OP 7.50	No
Projects in Disputed Areas OP 7.60	No

Summary of Screening of Environmental and Social Risks and Impacts

The Environmental and Social risk rating are classified as Moderate. Overall, the project is expected to have a positive environmental and social impacts as it will support firms to reduce their carbon footprint, water consumption and increase their energy efficiency by supporting the uptake of green technologies. The project will mainly finance purchase of the

¹⁶ This component targets to support innovative technologies that are between TRL 3-7 or R&D activities for innovative and green products. An indicative list of eligible categories is given below: Air Pollution Control, Clean Up or Remediation of Soil and Water, Efficient Consumption of Energy Technologies and Carbon Capture and Storage, Environmental Monitoring, Analysis and Assessment Equipment, Environmentally Preferable Products Based on End-Use od Disposal Characteristics, Energy Efficiency, Gas Flaring Emission Reduction, Heat and Energy Management, Management of Solid and Hazardous Waste and Recycling Systems, Natural Resource Protection, Renewable Energy, Resources and Pollution Management, Waste Management, Upcycling and Remediation, Waste Water Management and Potable Water Treatment, Sustainable Water Supply, Use of biodegradable raw materials, and Industrial symbiosis.

¹⁷ Leveraging the experience of IFC in defining a consistent and comprehensive green taxonomy operationalized in the Climate Assessment for Financial Institution (CAFI) tool.



equipment, green technologies, which will be clearly defined under the project design. Civil works are not expected within the scope of the project, nor activities which would require land acquisition, restrictions to land use or involuntary resettlement, as defined under ESS 5; nor those with significant impacts on biodiversity or cultural heritage. The main environmental and social risks are expected to be associated with (i) labor and working conditions, and occupational health and safety in beneficiary firms; (ii) dust and noise generation, water and energy use, waste management resulting from the business activities of the beneficiary firms (iii) social inclusion aspects, i.e. access to finance by women-led or women - managed firms, as they face more obstacles in accessing finance in Türkiye; (iv) perceptions of 'greenwashing?; and (v) capacity of DGI MoIT, KOSGEB and TUBITAK to implement the ESF requirements. These risks and impacts are expected to be temporary and reversible, low in magnitude and localized, and can be mitigated through known good management practices. Sexual exploitation and abuse (SEA) and sexual harassment (SH) risks are assessed as low. To manage these E&S risks and impacts the DGI MoIT will prepare an Environmental and Social Management Framework (ESMF), Labor Management Procedures (LMP) and Stakeholder Engagement Plan (SEP) prior to project appraisal. These instruments, of quality acceptable to the World Bank, will be disclosed in English and Turkish languages before project appraisal and publicly discussed and consulted upon with stakeholders. The ESCP will require MoIT, KOSGEB, and TUBITAK to hire or appoint qualified E&S staff to implement and monitor ESF requirements.

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APPROVAL

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