



Green Business Development Services for Jordan's Industrial Sector

A Report on the Supply of and Demand for Green BDS by Medium to Large-Sized Firms in
Selected Industrial Sectors in Jordan

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EXECUTIVE SUMMARY

The green transition has become a strategic priority for Jordan's industrial sector as formulated in the Economic Modernization Vision 2033. Manufacturers already today are facing mounting pressure due to the kingdom's severe resource scarcity and vulnerability to climate change, resulting in high utility costs and the need to grow business as resource-efficiently as possible.

Introducing green economy approaches can be a key driver to not only ease operational pressure for industries but also open new business opportunities in green export markets. The extent to which the consultancy market for green business development services (Green BDS) in Jordan can facilitate the industry's green transition, however, remains unclear, partly due to the lack of data. In a first attempt, this report screened¹ both the demand for and supply of Green BDS in Jordan, aiming to bridge the knowledge gap and allow for a first assessment of market dynamics:

- All surveyed Green BDS categories² are currently supplied to in Jordan, but the respective **market is still in its early stages** while the quality of provided services could not be fully assessed. In this regard however, service providers (SPs) self-reported support needs for **introductory and more specialised Green BDS trainings**.
- **Currently, Green BDS demand and supply seem congruent** with no fundamental mismatch between demand and supply at the time of this writing. However, demand for Green BDS in the identified industrial sectors is expected **to increase substantially in the near future and thus outgrow its supply, both in terms of the quantity and the quality** of provided services. This furthermore differs from sector to sector and can also substantially vary at the sub-sector level.
- As there is both high demand for support services by industries and willingness to co-finance these, there seems to be a **conductive business environment** for further market development.

These key findings translate into the following recommendations:

- **Verify Green BDS service quality and assess expansion potential**
- **Offer tailored Green BDS trainings for SPs** covering introductory and advanced levels due to an anticipated tendencies for specialisation of service portfolios by SPs once the market matures. The latter including the expansion of the following Green BDS services:
 - **Energy generation** with focus on energy efficiency across all sectors
 - **Resource efficiency**, especially for the food processing and packaging/printing sectors
 - **Waste management** across sectors (exception of the chemicals/cosmetics sector)
 - **Audits** across sectors with focus on energy audits
- **Engage with stakeholders on green financing mechanisms.** While most surveyed enterprises confirmed their willingness to (co-)finance Green BDS, impactful industry transformation would need additional support coupled with respective awareness creation on green finance solutions.
- **Implement pilot projects that match SPs and industry enterprises** which will not only create immediate business and environmental benefits but will also offer a practical way to further study Green BDS demand and supply up closely.

¹ Responses from 241 industrial firms across five selected sectors (chemicals/cosmetics, food processing, pharmaceuticals, textiles, and packaging/printing) gathered in April/May 2022. The supply screening, meanwhile, encompassed 26 green BDS service providers (SPs) in August/September 2022.

² Green BDS refers to consulting services related to (i) resource efficiency (incl. electricity, water, diesel / LPG), (ii) waste management (wastewater, solid waste, re-cycling), (iii) green energy (incl. solar, wind, recycling) and (iv) audits (energy, water, emissions, waste, environmental).

1 INTRODUCTION

The green transition has become a strategic priority for Jordan's industrial sector as formulated in the Economic Modernization Vision 2033. The role of the sector for the kingdom's economy is meanwhile critical as it has a strong impact on economic performance, with an indirect contribution of 40% to GDP³. In 2021, the manufacturing sector had a direct contribution of 17.4% to the GDP while employing up to 13.6% of the national workforce⁴. At the same time, manufacturers are facing mounting pressure due to the kingdom's severe resource scarcity and vulnerability to climate change, resulting in high utility costs and the need to grow business as resource-efficiently as possible.

For the consultancy market in Jordan to support the green industrial transition, services related to resource-efficient and environmentally friendly production methods require further development as it is currently facing a set of challenges due to the novelty of Green BDS solutions and their applicability. Moreover, industries in Jordan have limited access to Green BDS technological expertise and sector-/business-specific support.

This has posed challenges for both large and medium-sized business. While larger enterprises face fewer financial constraints, they encounter obstacles finding the right technical expertise to support the design, implementation and monitoring of green production activities. Medium-sized enterprises, on the other hand, face a lack of access to technical support but are also constraint in terms of their financing capacity. Furthermore, larger enterprises tend to focus more on the construction of new production facilities, while medium-sized enterprises rather seek adjustments to existing facilities, which translates into different technical support requirements.

Against this backdrop, the German Federal Ministry for Economic Cooperation and Development (BMZ) commissioned the *Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH* with the implementation of the "Green Action in Enterprises" (GAIN) project to support stakeholders in the introduction of green economy approaches to the industrial sector in Jordan. This is a coordinated effort with the Ministry of Environment (MoEnv) as the political partner, as well as the Ministry of Industry, Trade and Supply and other local partner institutions including the Jordan Chamber of Industry (JCI), Royal Scientific Society (RSS), EDAMA, and the Jordan Renewable Energy and Energy Efficiency Fund (JREEEF). In cooperation with GFA Consulting Group and Wee Pros Jordan, the development and provision of green BDS is being supported.

Enhancing Green BDS is of critical importance towards achieving the green transition. However, due to the newness of such services, so far there is only limited data available to inform Green BDS support. Therefore, a screening of both Green BDS demand and supply is necessary. This will lead to a clearer understanding of what services Jordan's industrial sector is seeking while at the same time looking into already existing consultancies and their service offerings. In a second step, emerging gaps between demand and supply will inform subsequent activities towards offering tailored trainings for Green BDS consulting firms. Connecting such SPs with enterprises seeking concrete technical support will then lead to the launch of pilot projects. These projects, in turn, will be the foundation for success stories that can positively influence the general awareness of the benefits of Green BDS.

³ <https://www.moin.gov.jo/wp-content/uploads/2019/07/Industry-Sector-Profile-24-4.pdf>

⁴ <https://www.jordanvision.jo/img/vision-en.pdf>

2 METHODOLOGY

This report is based on findings derived from both quantitative and qualitative data. While the former was gathered through an online survey to obtain novel information, site visits, and focus group discussions (FGDs) with enterprises from the industrial sector were conducted for further data contextualisation.

For the purpose of this report, 'Green' BDS is defined as service packages targeting cleaner production, environmental sustainability, and the green economy as a whole. Particularly, the report refers to Green BDS targeting the following areas:

- Resource efficiency (electricity, water, diesel & LPG)
- Waste management (wastewater, solid waste, recycling)
- Green energy through renewables (solar, wind) or recycling
- Audits (energy, water, emissions, waste, environmental).

Box 1: Definition of Green BDS

2.1 DEMAND

A demand survey was implemented following a multi-step process. It inquired about Green BDS support needs along a comprehensive list of questions (for the full questionnaire, see Annex 3) and verified in (total of 18) FGDs and site visits. Given the lack of available information, such exploratory data collection was conducted in March and April 2022 in cooperation with the Amman Chamber of Industry (ACI) and the Jordan Chamber of Industry (JCI).

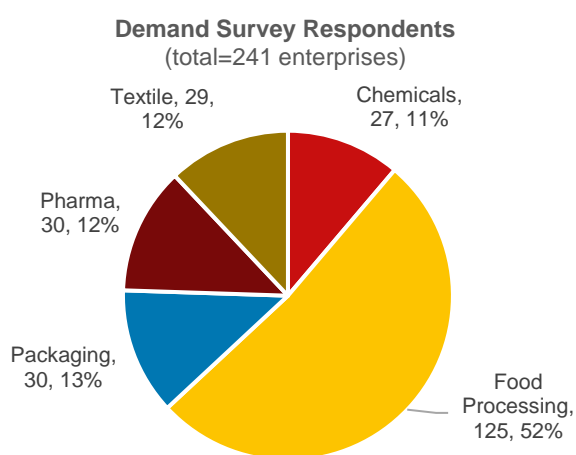


Figure 1: Demand Survey Respondents

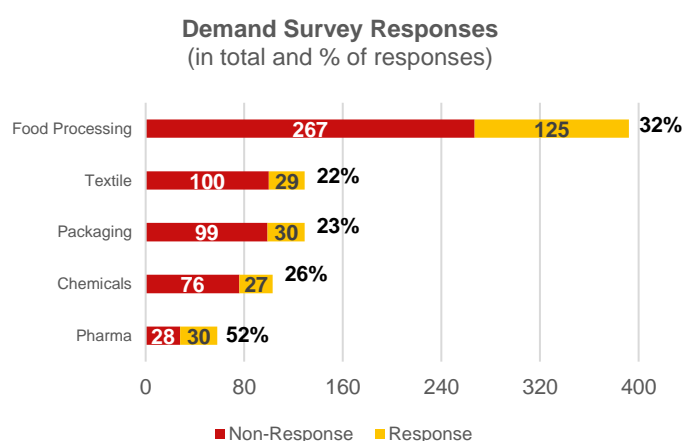


Figure 2: Demand Survey Responses

The survey covered medium to large industrial enterprises⁵ in Jordan in the food processing, textiles, chemicals and cosmetics, pharmaceuticals, and packaging/printing sectors. As of March 2022, the total number of enterprises registered in the five sectors with ≥ 20 employees was 811, of which all have been approached. With a response rate of 30%, a total of 241 enterprises completed the survey (see Figures 1 and 2). The geographical distribution of respondents reflects the geographical distribution of

⁵ The Central Bank of Jordan's definition was applied which considers that enterprises with more than 20 employees to be medium-sized. This employment bracket was chosen, as it comprises firms with growth potential in an increasingly competitive and market.

enterprises with 76% of the respondents being headquartered in Amman, followed by 8% headquartered in Zarqa as the second largest industry hub in the country.

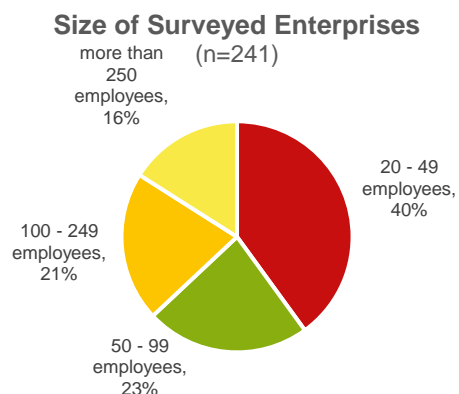


Figure 3: Size of Surveyed Enterprises

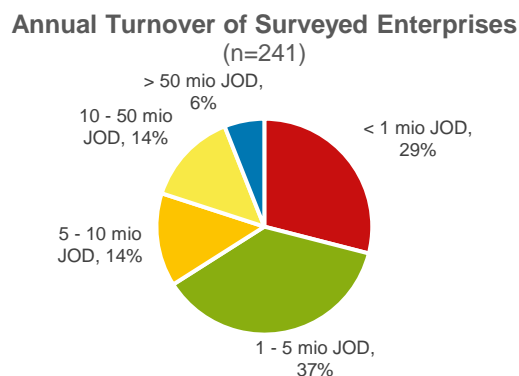


Figure 4: Annual Turnover of Surveyed Enterprises

Furthermore, Figure 3 and 4⁶ show that 63% of the surveyed enterprises had less than 100 employees, while 66% had an annual turnover of 5 million JOD or less. Therefore, most responses came from medium-sized enterprises. Several limitations and challenges emerged in the context of the survey:

- High degree of sub-sectorial fragmentation. Overarching sectorial support demands can only be deduced to a limited extent, with technical sub-fields became transparent as areas where tailored Green BDS consultancy support is needed most. Further analysis into the specifics of sub-sectors could be useful in addressing specific needs.
- Lack of data. It was necessary to pose a substantial number of general questions at the beginning of the survey to enable sound contextualisation which, on the other side, made it necessary to limit the scale of in-depth questions to avoid a high survey drop-out rate.
- Scope of the posed in-depth questions requires inputs from a wider range of enterprise representatives, primarily top-level planning, accounting, procurement, sales, and quality management. Respective follow-up and exploration within the surveyed enterprises could be helpful in this regard.

2.2 SUPPLY

Due to time constraint, a comprehensive screening based on the following process has been conducted to cover the current supply of Green BDS in Jordan:

1. Initial screening of SPs, i.e., consultants and consulting firms, to determine which SPs are operating in areas identified as / or related to Green BDS (see Figure 5).
2. Initial assessment of whether Green BDS constitutes core activities of their service portfolio.
3. Evaluation of competence, experience, and capacity of short-listed SPs (for full list of selection criteria, please see Annex 2).

⁶ cut-off values between the different categories are overlapping

4. Visit of short-listed SPs for an in-depth evaluation discussing their portfolio and areas of expertise. These visits were carried out with 26 SPs from 8th of August to 18th of September 2022.

Several limitations and challenges emerged:

- The data gathered focused on the availability of Green BDS, not their technical quality.
- The area of green energy generation, which was part of the demand screening, has not been surveyed within the scope of analysing the supply.
- The applied selection criteria (see Annex 1) put some constraints on the number of SPs that could have become part of the screening process.
- The sample was biased towards SPs who expressed interest in further project participation to the exclusion of those that might not be able or willing to commit resources to further project participation.
- SPs only self-reported on specific weaknesses and/or training needs.

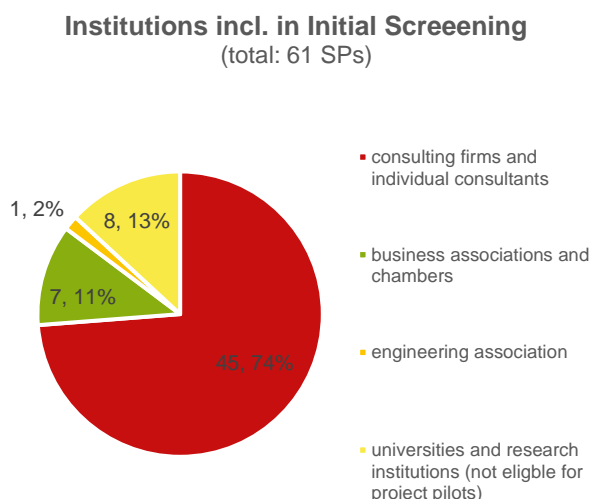


Figure 5: Institutions Included in Initial Screening

3 DEMAND FOR GREEN BDS

The data suggests that currently rising interest for Green BDS is likely to translate into substantially growing demand soon. The enhanced global and regional emphasis on climate action, in addition to the industry's high-energy costs, are key drivers. It also became clear that from the perspective of industrial enterprises, there is a lack of awareness and understanding of the Jordanian Green BDS consultancy market as well as a lack of information regarding green finance.

3.1 CROSS-SECTORIAL INSIGHTS

Projected Industry Development: the survey results showed that green production has become a topic of critical importance for Jordanian industry as a whole. Across the five surveyed sectors, it became apparent that the number of planned projects in the area of green production outnumbered the number of completed and / or ongoing projects (see Figure 6). When aggregating the data cross-sectorially, the number of planned projects versus the number of ongoing projects almost triples. While this data needs to be understood as indicative, it nevertheless showed (i) a high awareness of the increasing importance of

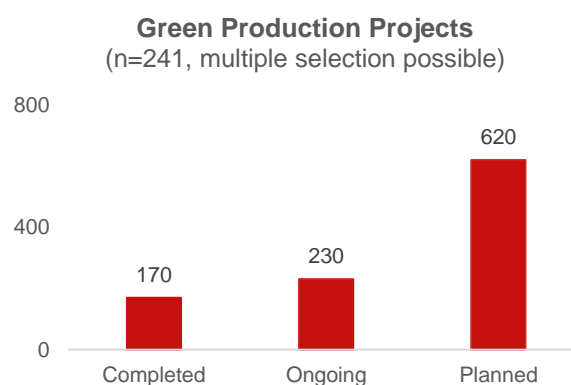


Figure 6: Green Production Projects

green production, (ii) a readiness to actively work towards the green transition, with a general willingness to translate this into a substantially higher number of projects.

The future of green production becomes accentuated when further breaking down the planned projects data into technical Green BDS sub-categories, whereupon an increase in interest across all given Green BDS categories became visible. Particular spikes in the number of planned projects became apparent with regards to green energy generation through solar energy, resource efficiency with a focus on electricity, waste mangement as in solid waste mangement and recycling as well as with regards to energy audits (see Figure 7).

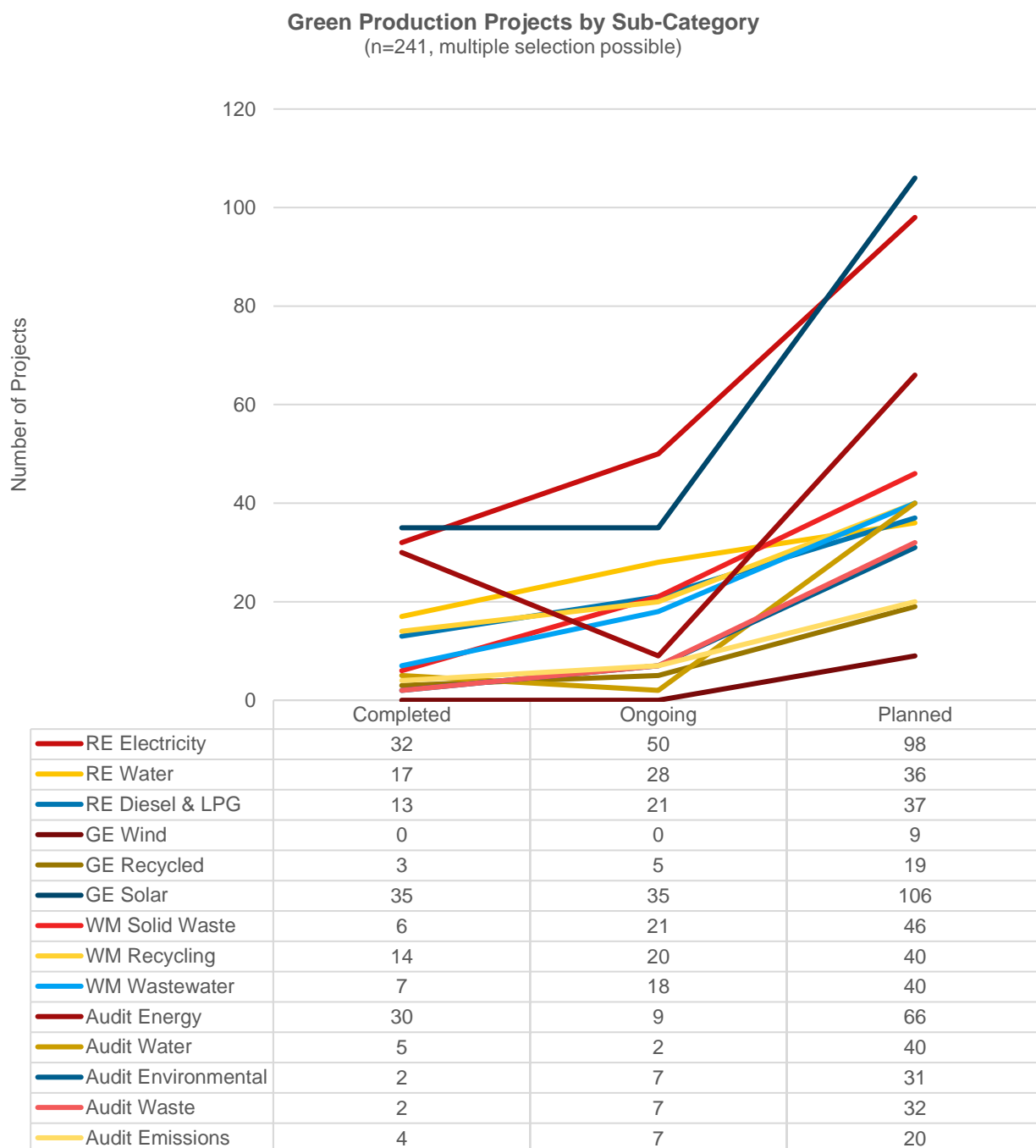


Figure 7: Green Production Projects by Sub-Category

Technical Segmentation of Planned Projects: The importance of enhancing resource efficiency and audits is further underlined by a deeper analysis of the planned projects. As shown above, the survey gave respondents the option to not only indicate that projects are planned, but also to select from a comprehensive range of Green BDS categories. Building on this data, four main categories were aggregated: resource efficiency, audits, green energy and waste management (see Figure 8).

The respective results show that 76% of the planned projects, as indicated by respondents, are concerned with audits (26% of which are energy audits), while 71% fall within the field of resource efficiency, with a clear focus on electricity (41%). These categories are closely followed by 54% of planned projects in green energy, 44% of which were indicated as relating to solar power. The remaining planned projects could be collated under the category of waste management (51%), whereupon solid waste (19%), recycling (17%) and wastewater (15%) projects were relatively evenly distributed.



Figure 8: Technical Segmentation of Planned Projects

Green BDS Support Needs: Across the five industrial sectors, support in the field of “energy” was highlighted as of high importance (see Figure 9), followed by different dimensions related to waste management.

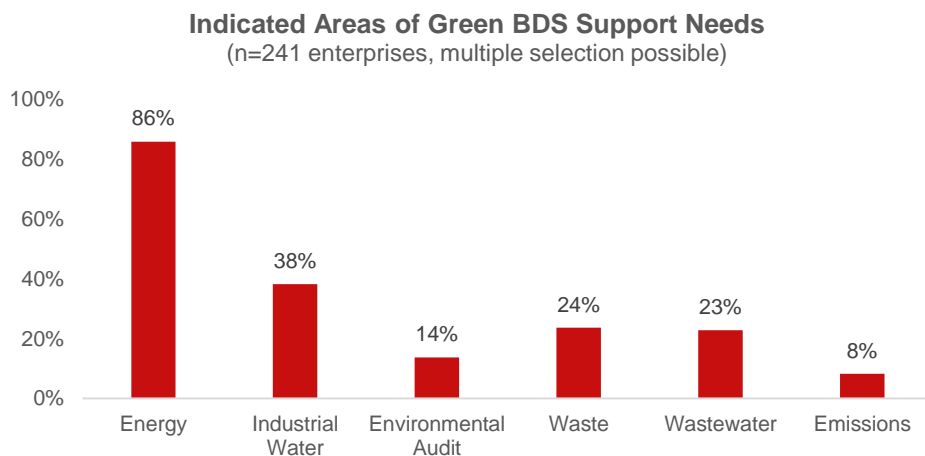


Figure 9: Indicated Areas of Green BDS Support Needs

The above results highlight the importance of the transition towards green energy in Jordan. This is in line with the surveyed perception that energy costs have been increasing (see Figure 10). In fact, 27% of respondents specified that within the last five years, costs for “electricity” have been very high while 31% indicated that the respective increase was “high”. Corresponding results for the costs development of diesel was that 13% of managers rated the cost increase as “very high” while 11% considered it

“high”. Other options for selection, like water, LPG, wastewater, and solid waste were perceived as less pressing, with substantially less managers evaluating cost increases as “high” or “very high”.

In sum, this shows that technical support in the area of green energy and ressource efficiency is a top priority for industry, independent of sector-specific intricacies.

This is reflected in the fact that 93% of the survey respondents indicated that they need technical support in green production (see Figure 11). At the same time, only 16% of enterprises have previously worked with Green BDS consultancies; those clients indicated as part of the survey their satisfaction with the delivery of service (4.2 out of 5 points) while others voiced in FGDs their disappointment over their quality.

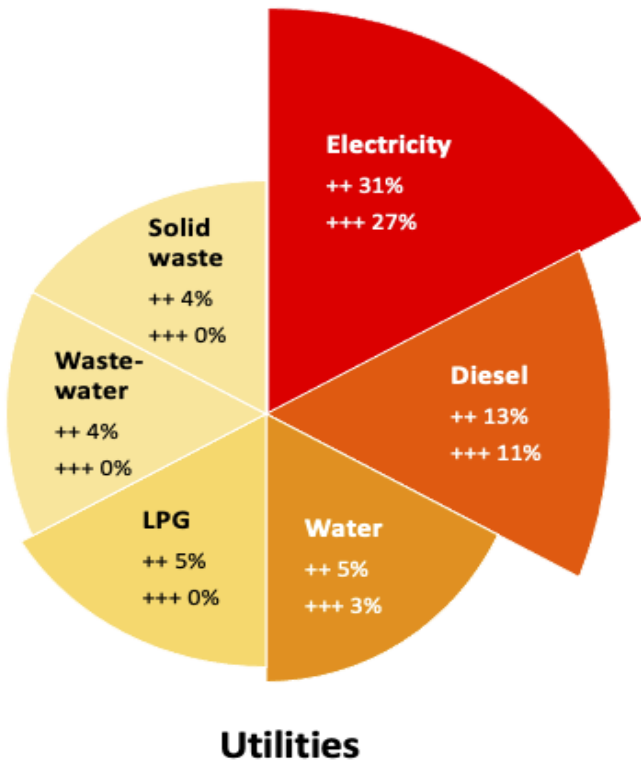


Figure 10: Industry Manager Perception of Cost Developments over the last 5 Years

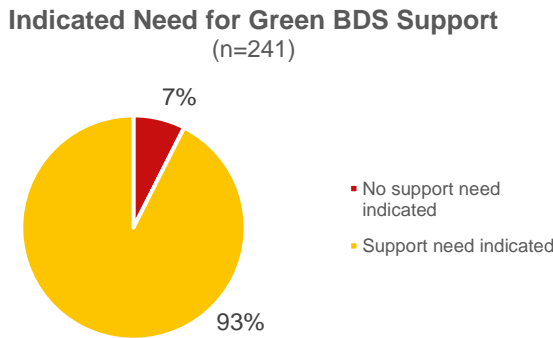


Figure 11: Indicated Need for Green BDS Support

Furthermore, 77% of respondents indicated that they would be willing to (co-) finance Green BDS. The need to have better access to green technology was also highlighted. Reflecting Jordanian overall market dynamics, 85% of the survey respondents were active exporters, whereupon 38% - the largest bracket – had an export share of more than 50%. This needs to be understood in the context of green production becoming an issue of increasing global importance. Demand patterns and regulatory frameworks across the globe are

shifting gradually towards higher degrees of environmental protection and climate action. This, in turn, has an impact on how countries like Jordan might need to (re-)compose their export strategy in the near future.

3.2 SECTORIAL INSIGHTS

While the data for each of the five surveyed sectors must be understood in the context of total respondent numbers varying between sectors, the survey results showed relevant particularities.

Green BDS Support Needs: All sectors showed a roughly similar pattern in terms of their support needs (see Figure 12). However, the relatively higher number (>40%) in the chemicals/cosmetics and food-processing sectors concerning technical support with regards to industrial water is noteworthy.

With the exception of the food processing sector, all sectors indicated negligible interest in emissions reduction measures.

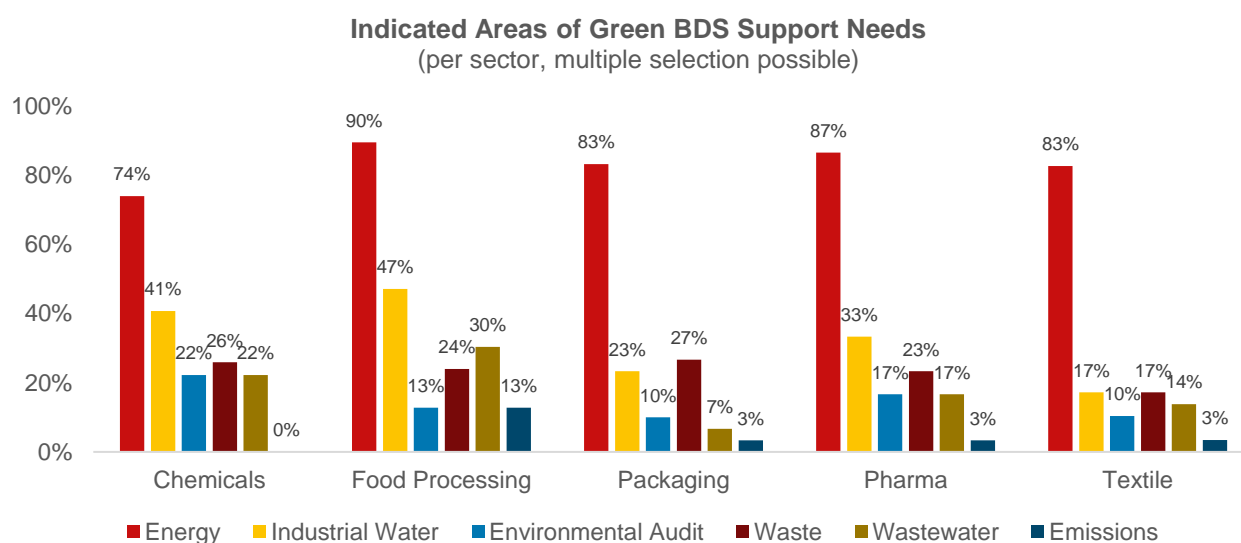


Figure 12: Indicated Areas of Green BDS Support Needs by Sector

Projected Industry Development: As reflected in the cross-sectorial analysis above, industry enterprises plan to substantially increase green production efforts. However, the degree of this varies between sectors (see Figure 13). The relatively biggest increase of activities is to be expected in the food-processing and chemicals/cosmetics sectors which have collectively indicated that they would more than triple their number of green production projects, closely followed by the packaging/printing sector. This can be explained with their rather resource-heavy in addition to experiencing enhanced compliance pressures. They thus have particular incentives to shift their activities towards greener production. Thereby, the chemicals/cosmetics sector is set out to be consuming most energy, while the food sector has the highest rate of water consumption.

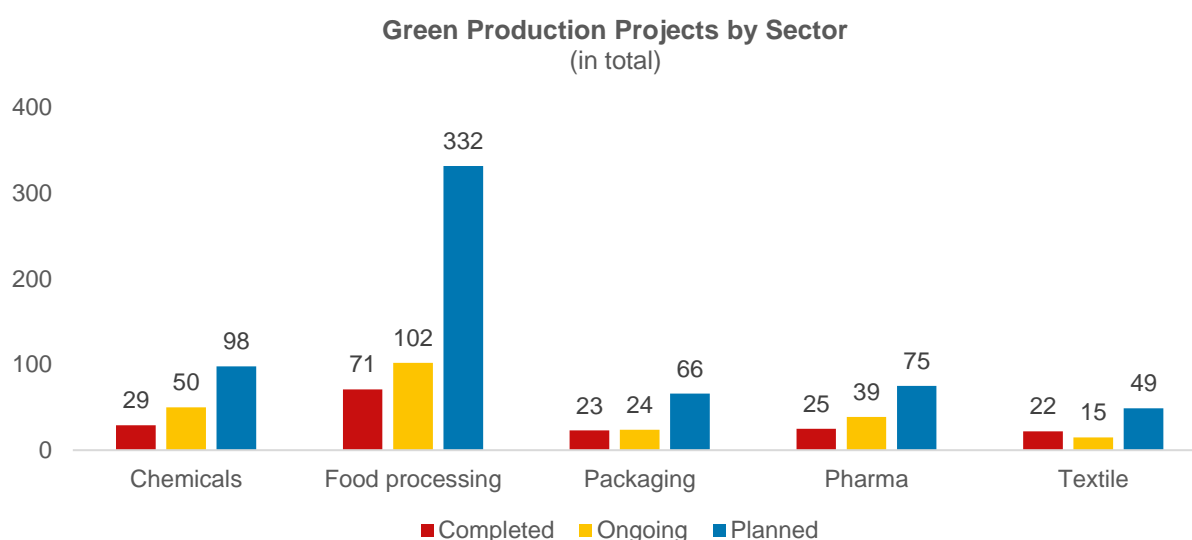


Figure 13: Green Production Projects by Sector

Technical Segmentation of Planned Projects: The sectorial data highlights differences with regards to the technical sub-categories of planned projects (see Figure 14). Overall, no sub-category is clearly prioritised across sectors.

The biggest outlier is audits (44%) in the chemicals/cosmetics sector which is in line with the changing pressures towards environmental compliance and increasing pressures particularly regarding energy audits due to high levels of energy consumption. Reflecting general trends, resource efficiency was mentioned to be the priority in the food processing (30% of planned projects) and packaging/printing sectors (33% of planned projects), which are relatively resource-heavy. Along the same logic, the pharmaceutical sector indicated that most of its planned projects will be in the field of green energy, albeit that the distribution across the four main categories is more even. A more detailed breakdown of sector-specific demand by technical sub-category can be found in Annex 2.

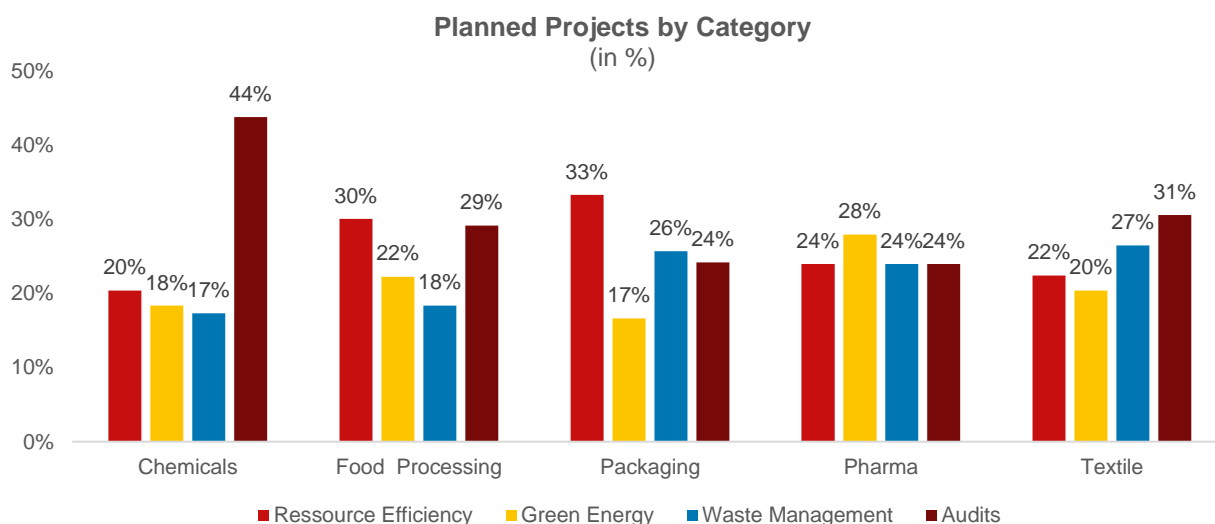


Figure 14: Planned Projects by Category (in %)

Through the FDGs and site visits, the online survey findings were confirmed. Other demands areas were also mentioned, including support needs with regards to medical waste and the need to uphold more statistical data on cost developments, specifically in the food processing sector to increase awareness for urgent action. Explicit support needs were also voiced regarding access to technological know-how in waste management and with regards to cost-saving and environmentally friendly packaging (e.g. in the cosmetics sector). Furthermore, some of these interactions highlighted that donor mechanisms, both in terms of technology transfer and financing, play an important role in influencing both demand and supply.

4 SUPPLY OF GREEN BDS

Data suggests that while all the surveyed Green BDS categories are available in Jordan, the market is still in its early stages of development. Table 1 below shows the service portfolio of 26 Green BDS SPs which were surveyed as part of the market study (for details, see Section 4.1). The composition of their service portfolios as displayed is based on information the SPs self-reported.

#	SP Name	Resources Efficiency (RE)			Waste Management (WM)			Audit & Feasibility Studies (A-FB)				
		Electricity	Diesel & LPG	Water	Wastewater	Solid Waste & Recycling	Hazardous Indoor Emission	Energy	Water Management	Wastewater	Hazardous Indoor Emission	Environment Audit
1	Talal Abu-Ghazaleh & Co. Consulting (TAG-Consult)			X			X			X	X	X
2	Engicon	X	X	X	X	X	X	X	X	X	X	X
3	Eco Consult			X	X	X	X		X	X	X	X
4	Dar Al-Omran			X	X	X	X		X	X	X	X
5	Green Path	X	X	X	X	X	X	X	X	X	X	X
6	Mustafa Al-Jaar Establishment for Consultations (MAEC)				X	X		X		X		
7	Nabil Ayoub Wakleh & Co (Wakleh Contracting)				X	X	X			X		
8	MMIS - Management Consulting	X	X	X		X	X				X	X
9	Sajdi Consulting Engineering			X	X				X	X		
10	Patrons	X	X	X		X	X					
11	ID-RC	X	X	X	X		X	X	X	X	X	X
12	Minerva for Engineering Studies & Consulting	X	X	X		X	X	X	X		X	X
13	Development Dimension for Environment and Disaster Risk Reduction (Dimetric)	X	X	X	X	X	X	X	X	X	X	X
14	Hima Consult						X				X	X
15	Al-Rawabi Environmental and Energy Consultancies (REEC)					X	X				X	X
16	Al-Shamli Engineering Office	X	X	X	X	X	X	X	X	X	X	X
17	Scientific Center for Food											X
18	Eco Engineering & Energy Solution (EcoSol)	X	X	X			X	X			X	X
19	Ezzat Moussa Marji & Sons	X	X					X				
20	Energy & Environmental Solutions Co. (ETA-Max)	X	X					X				
21	Cambridge Engineering Consultancy	X	X					X				
22	Al Manhal Renewable Energy	X	X					X				
23	National Energy Solutions	X	X			X		X				
24	Sunray Corporation for Energy Saving Systems	X	X					X				
25	German Energy Academy (at Hussein Technology University)	X	X									
26	Jordan Engineering Association (JEA)/Training Center	X	X	X	X	X	X	X	X	X	X	X
Total - Sub Services		17	17	14	11	14	16	15	10	12	14	15
Total - Main Services		21			19			24				

Table 1: Service Offerings by Individual SPs (red= consultancies; green= environmental auditors; light grey= information distributors; yellow= energy auditors; dark grey= training institutions)

4.1 CROSS-SECTORIAL INSIGHTS

Green BDS Supply by Category: The 26 surveyed SPs collectively show a rather balanced service portfolio (see Figure 15), whereupon audit and feasibility studies support services are offered by 24 (37%) of the SPs. This is followed closely by services in the areas resource efficiency (22 SPs, 34%) and waste management (19 SPs, 29%).

While specific capacity building needs could not be substantiated based on the provided SP company information, the SPs interviewed expressed a need for:

- Holistic understanding of the green economy as a concept, including economic and marketing benefits
- Best practices in implementing green technologies
- Better understanding of major production processes and industry particularities
- Better embedding Green BDS in value chain analysis and management consulting
- International best practices in management consulting (although this varied between individuals and larger firms)
- Better connecting of audit results, projected savings, and impact with the enterprises' cost accounting (environmental revenue and green accounting)
- Full alignment of reporting standards with international practices.

SP Offerings by Main Categories
(multiple selection possible)

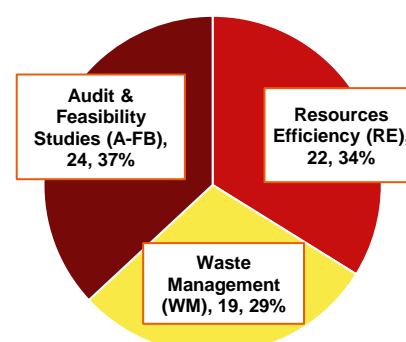


Figure 15: SP Offerings by Main Categories

This shows that the SP training needs are covering the full range of BDS, some of which are also falling outside of the remit of the green economy. Furthermore, some of the indicated needs are at the level of introductory information, while other SPs expressed the need for training in more advanced sub-categories. A necessity, meanwhile, to offer /introduce new Green BDS was not expressed explicitly by any SP, with the exception that the digitisation of processes related to energy efficiency measuring/tracking appeared essential. However, the need for better access to green technologies was underlined.

Green BDS Supply by Sub-Categories: When breaking down the above categories, the responses at the level of technical sub-categories were reflecting a similar trend as at the category level (see Figure 16), underlining a balanced distribution of offered services.

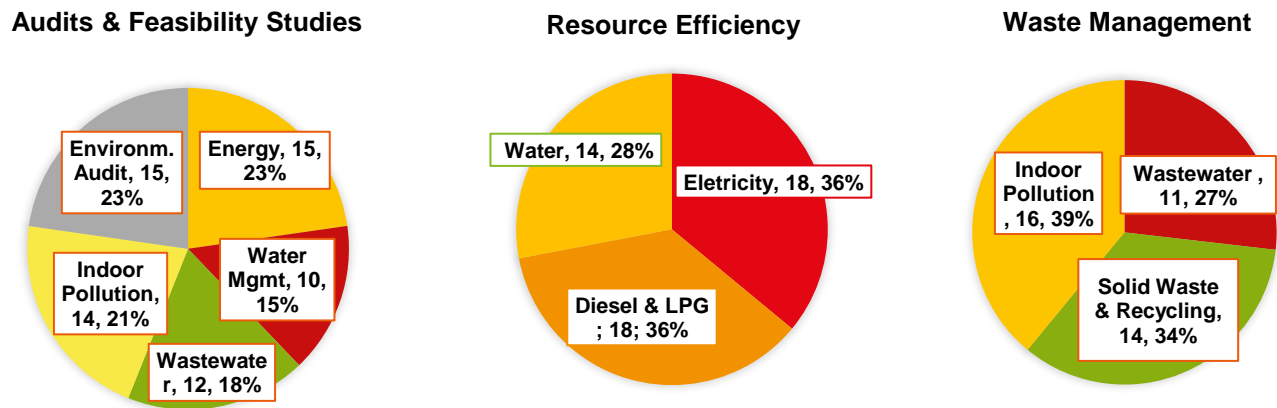


Figure 16: Green BDS Supply by Sub-Category

Furthermore, the data suggests that all of the surveyed **Green BDS sub-categories were provided** without any category being overtly over- or underrepresented, with the relative exception of water-related services (see Figure 17).

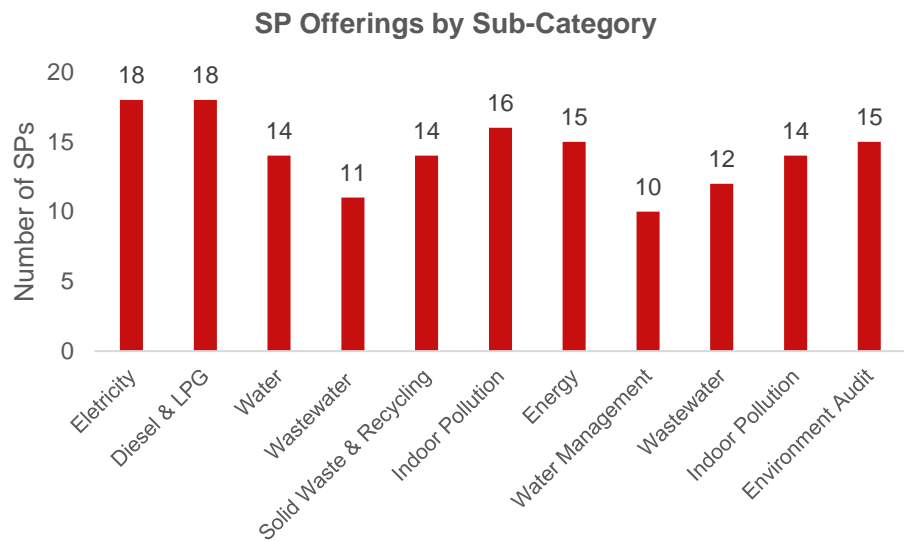


Figure 17: SP Offerings by Sub-Category

4.2 SECTORIAL INSIGHTS

Green BDS Supply by Sub-Category & Sector: The data showed that there seemed to be a divergence between the food-processing, chemicals/cosmetics, and pharma sector on the one hand, and the textiles and packaging/printing sector on other hand (see Figure 18). Across sub-categories, there were more SPs available that indicated to support the former (food processing, chemicals/cosmetics, pharma) than SPs working on the latter (textile, packaging/printing). For example, when taking a closer look, 13 SPs indicated a focus on the food processing sector when offering BDS to enhance resource efficiency with regards to electricity. For the packaging/printing sector, this was the case for only 5 SPs. Given that the importance of the different sub-categories varies from sector to sector, this general pattern across sub-categories deserves further investigation.

Furthermore, supply patterns per sub-category were relatively comparable across sectors. On the other hand, BDS regarding resource efficiency, covering both electricity and diesel & LPG, were relatively well supplied. This also applies for waste management services targeting a decrease in indoor pollution and energy audits (except for the textiles sector).

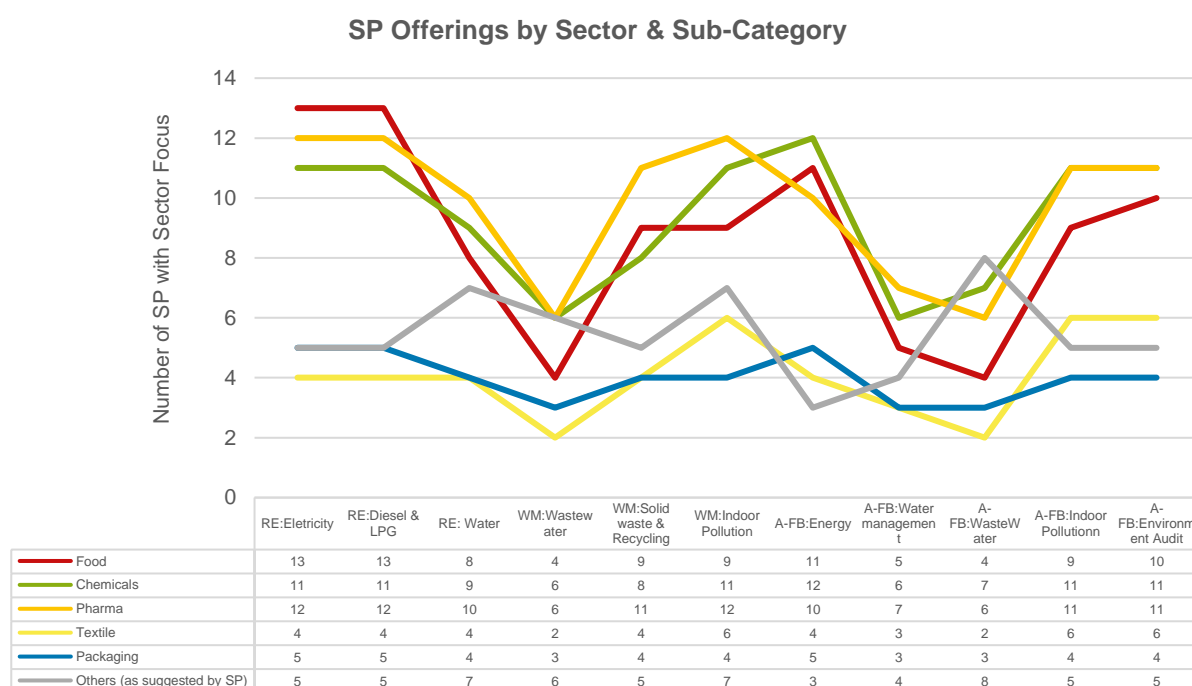


Figure 18: SP Offerings by Sector & Sub-Category

5 GAP ANALYSIS

When contrasting the screened demand and supply, the following key findings emerged:

- All the surveyed **Green BDS categories are generally supplied in Jordan**. There is no category or sub-category of services that was identified as not at all available. However, some enterprises questioned the quality of Green BDS as provided by SPs. Furthermore, enterprises expressed that they do not have a sufficient overview of the Green BDS consultancy market and also lack information regarding **green finance**. The lack of access to **green technologies** was moreover highlighted by both enterprises and SPs.

- Overall, **Green BDS demand and supply are currently rather congruent**. This means that both enterprises and SPs are aligned in terms of services, leading to a situation in which current enterprise demand is generally mirrored on the supply side. In other words, there is no clear mismatch between overall demand and supply patterns apparent.
- **Demand for Green BDS is expected to increase substantially** as indicated by the number of planned projects (see Chapter 3). When looking at the anticipated future demand across sectors and putting it into the SP supply context, there is some indication that the demand might outgrow the supply.
 - **in terms of quantity:** the screening showed that enterprises plan to double to triple their demand for Green BDS in the future compared to the number of currently ongoing projects. It is to be expected that some of the demand will not be servable by SPs without targeted intervention, though more analysis of human resources, access to expertise and technology, specific plans for specific timeframes for when new Green BDS projects, among others, would be needed to verify this claim.
 - **in terms of quality:** the Green BDS consultancy industry is still in its early stages of development while the surveyed industries are highly diverse at the sub-sectorial level. It is likely that enterprises will enquire technically more advanced support services to match current technological innovation progress made on the market.
- When directly comparing future demand and current supply (see Figure 19), it becomes clear that there are **less SPs available to serve anticipated demand in the food-processing and packaging/printing sectors than in other sectors**. While this data is not conclusive in terms of actual SP service availability and quality⁷, it nevertheless suggests that there might be a need to strengthen Green BDS support for those two sectors to be able to fully satisfy anticipated demand. When considering specific Green BDS categories, it furthermore becomes apparent that services towards improving **waste management** are supplied less than Green BDS in the other two categories⁸.

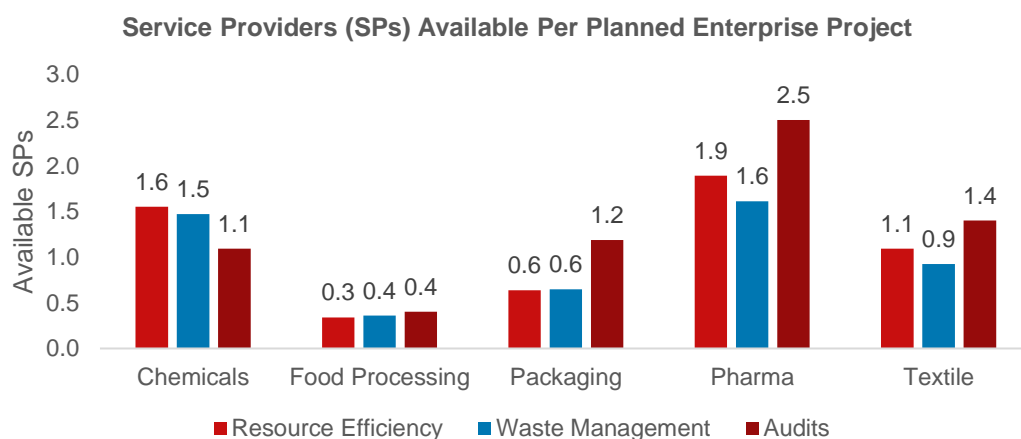


Figure 19: Service Providers (SPs) Available Per Planned Enterprise Projects

⁷ Whether the anticipated demand can be fulfilled by current SPs cannot be fully assessed based on the gathered data given that many SPs support several sectors at the same time and vary in terms of staff capacity etc. while planned enterprise project will also differ in size and scope.

⁸ Due to this data not being available on the SP supply side, a comparison regarding green energy generation demand and supply was not possible.

- It is not yet clear whether the lack of urgency among SP to diversify their service portfolio is due to missing information as outlined throughout the demand section of this report or because providers considering themselves well-prepared for the changing demand patterns
- **Substantial growth potential for the market as a whole can be expected.** The overwhelming majority (93%) of surveyed enterprises indicated that they would need support towards green(er) production, while 77% indicated that they would be willing to invest in such services
- **SPs self-reported on specific training needs at both the introductory and more advanced technical level,** including the need for trainings on green economy, green technologies, green accounting, specific green production processes and international reporting standards

6 CONCLUSIONS & RECOMMENDATIONS

This report enabled a better understanding of the Green BDS industry in Jordan. Overall, it became clear that Green BDS is of high importance for Jordanian industry. While demand for such services has already been gaining momentum, current environmental and market pressures are likely to accelerate this trend, leading to an expected jump in Green BDS demand. Jordanian consultancies already provide all surveyed Green BDS, however, these SPs need to be further supported with regards to addressing shifting demand across sectors and Green BDS (sub-)categories.

As mentioned throughout this report, additional engagement with stakeholders is necessary to further validate the gathered data. However, in sum, the following recommendations are suggested:

- **Verify SP service quality and assess expansion potential.** This would need to cover all related external and internal aspects, including the availability and hiring of suitable staff, both in terms of team size and technical expertise.
- **Offer tailored Green BDS trainings for SPs** in specialised (sub-)sectorial technical expertise as the demand for Green BDS is expected to increase. This shift should be anticipated when designing SP trainings and information regarding increasing enterprise demand patterns to be circulated among SPs.
- **Extend capacities in areas of potential future gaps.** This includes expansion of the following Green BDS services:
 - Energy generation, across sectors, with a focus on solar energy
 - Resource efficiency, especially with regards to the food processing and packaging/printing sector, with a focus on electricity
 - Waste management, across sectors, with the relative exception of the chemicals/cosmetics sector
 - Audits, across sectors, with a focus on energy audits
 - Furthermore, it was suggested to further investigate **audit processes**, both in terms of operational challenges at the public-private interface as well as in terms of lack of data about where enterprises are by trend non-compliant. Against this backdrop, further investigation into these areas is advisable.
- **Engage with stakeholders on financing mechanisms.** While the majority of surveyed industrial enterprises confirmed their willingness to finance Green BDS, it is anticipated that impactful industry transformation would need additional support from the side of the banking and investment sectors, but also through donor mechanisms.

- **Implement pilot projects that match SPs and industry enterprises** which will not only create immediate business and environmental benefits but will also offer a practical way to further study demand and supply up close. This should feed into SP training content and other project activities while enhancing direct cooperation between industry and Green BDS consultancies. Respective success stories will then be used to increase industry awareness of Green BDS benefits and solutions while stimulating the SP market.

Figure 20 provides a summary overview of the main findings, conclusions and recommendations provided through this report.

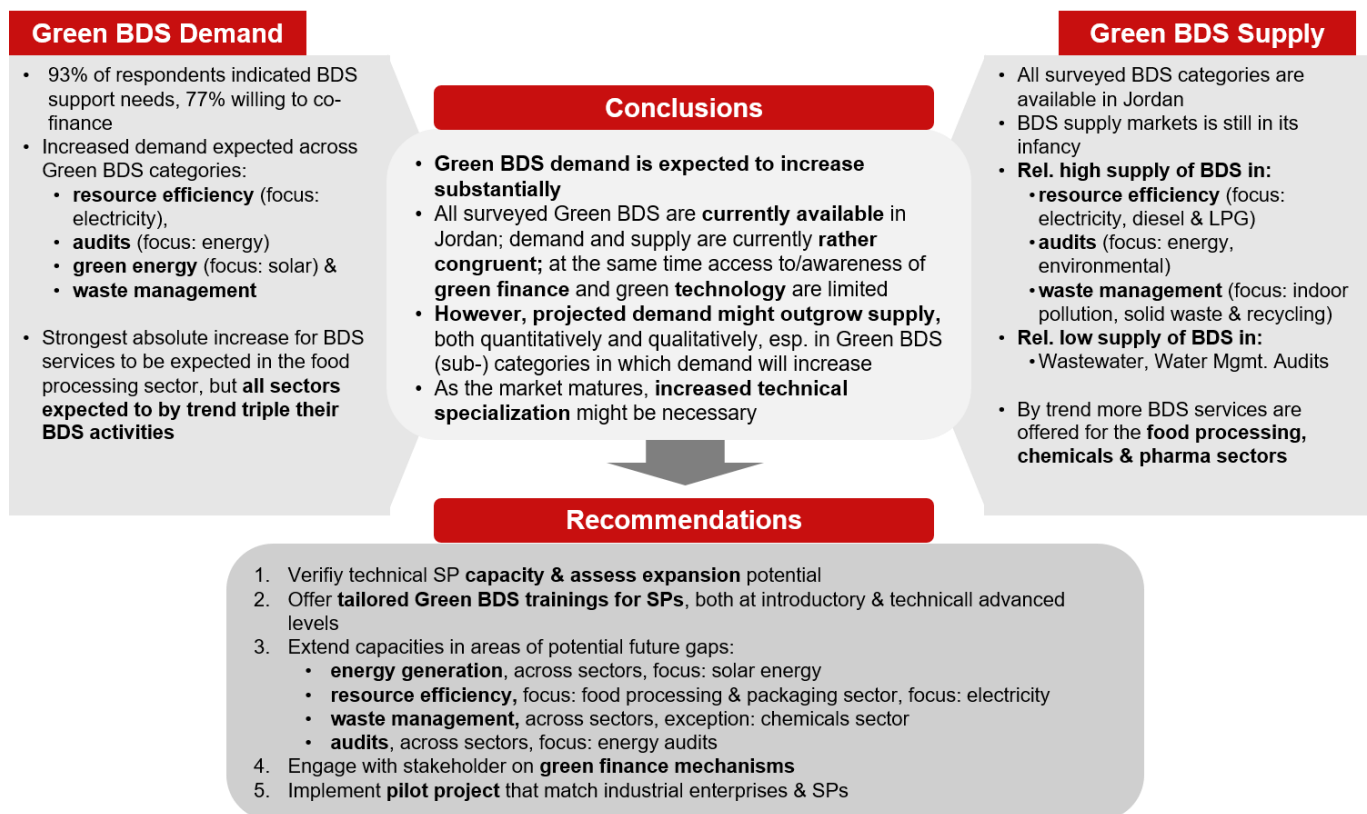


Figure 20: Overview of Main Findings

7 ANNEX

Annex 1: SP Selection Criteria

Annex 2: Sector-specific Demand by Sub-category

Annex 3: Demand Survey Questionnaire

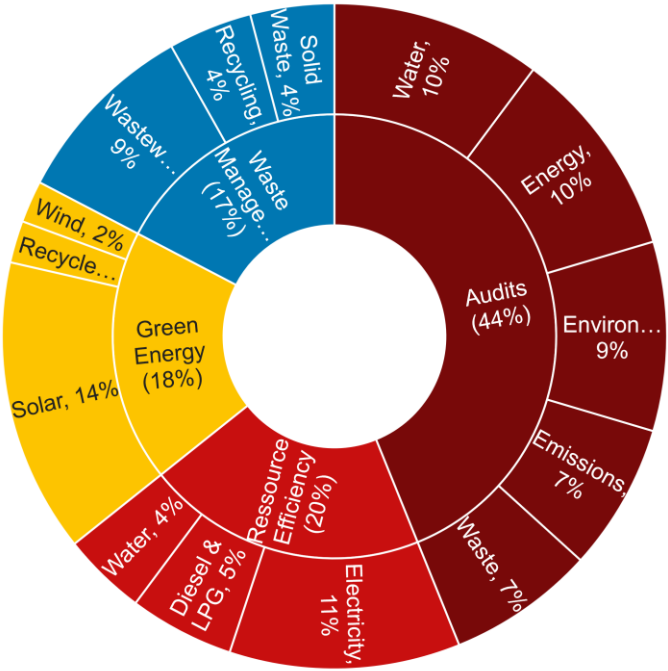
ANNEX 1: SERVICE PROVIDER (SP) SELECTION CRITERIA

Criteria	Shortlist	Final
Active portfolio contains Green or related services	mandatory	Compliance with at least one service
Industry experience indicated	mandatory	Experience documented
Years of experience in relevant portfolio	at least 5	(as shortlist)
Number of full-time consultants	higher=better	(as shortlist)
Share of freelance consultants	lower=better	(as shortlist)
Consultants are certified	an asset	(as shortlist)
Auditors certified / accredited	mandatory	(as shortlist)
Auditing companies have own (relevant) laboratory	an asset	(as shortlist)
Consultant registered in Jordan	mandatory	(as shortlist)
Expert profile compliant with the expertise indicated		at least 3 industry projects
Consultant committed & available to participate		mandatory

ANNEX 2: SECTOR-SPECIFIC DEMAND BY SUB-CATEGORY

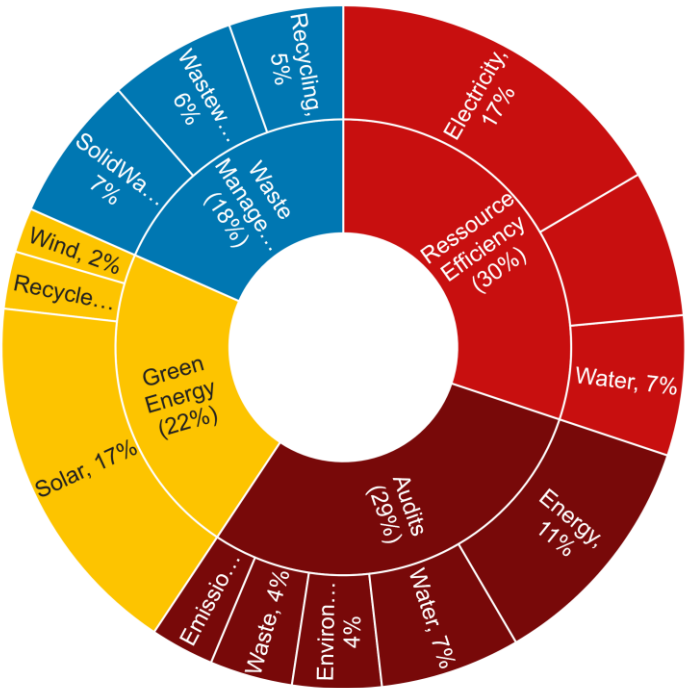
Chemicals/Cosmetics Sector:

Planned Projects in the Chemicals Sector (in %)
(total number of planned projects: 98)



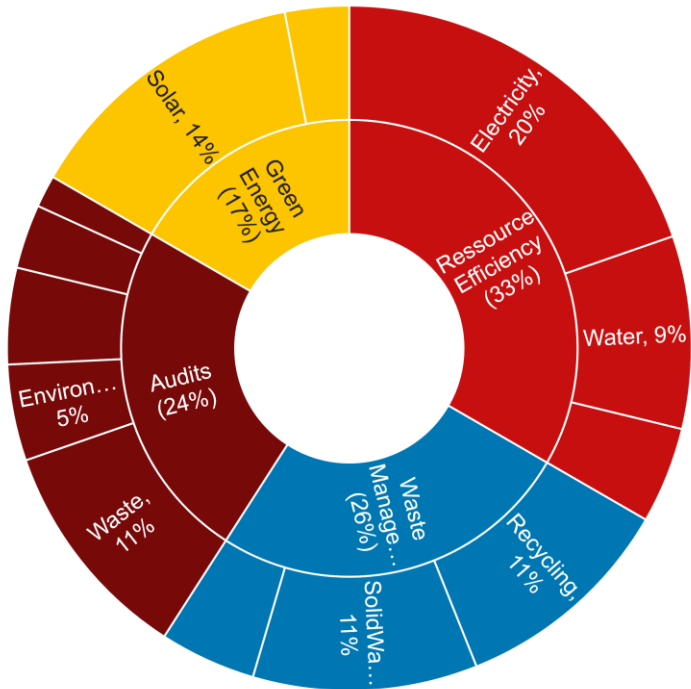
Food Processing Sector:

Planned Projects in the Food Processing Sector (in %)
(total number of planned projects: 332)



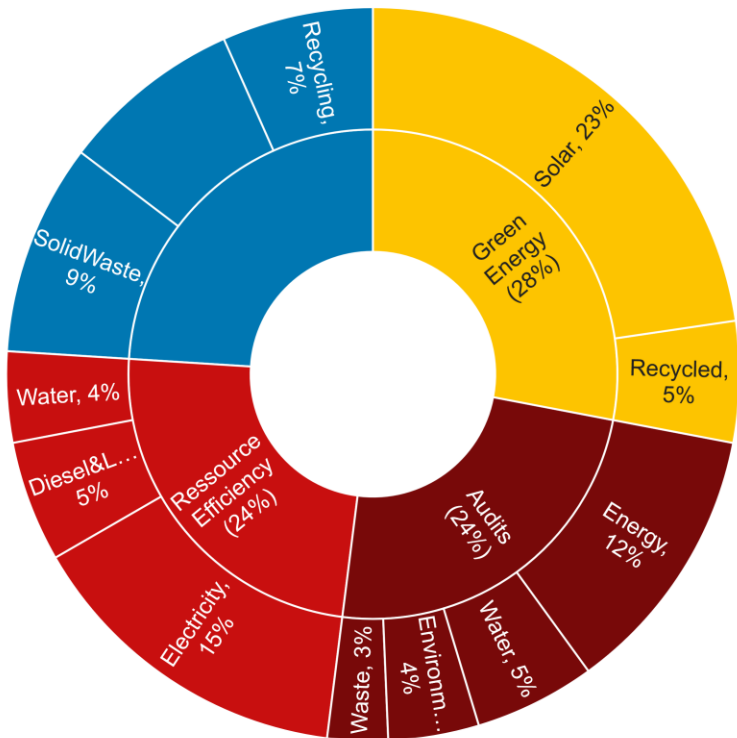
Packaging / Printing Sector

Planned Projects in the Packaging / Printing Sector (in %)
(total number of planned projects: 66)



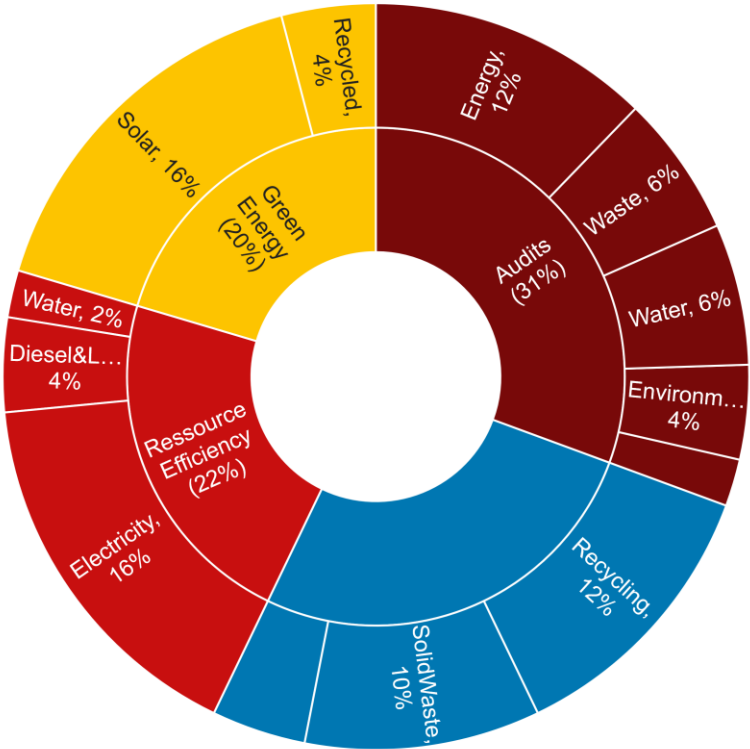
Pharmaceuticals Sector

Planned Projects in the Pharma Sector (in %)
(total number of planned projects: 75)



Textiles Sector

Planned Projects in the Textiles Sector (in %)
(total number of planned projects: 49)



ANNEX 3: DEMAND SURVEY QUESTIONS

Assessing demand for Green business development services within medium-large industrial enterprises in Jordan

A survey carried out by GFA Consulting Group under 'Green Action in Enterprises' (GAIN), a project funded by the German Federal Ministry of Economic Cooperation and Development and implemented by GIZ

* Required

General company information

1. Entity National Number *

2. Company name (as registered for trading) *

3. Company name (as registered legally) *

4. Economic structure

Mark only one oval.

- ☐ Main center without branches
- ☐ Main center with other branches
- ☐ Branch holding separate account
- ☐ Branch without separate account
- ☐ Regional office

5. Legal form *

Mark only one oval.

- ☐ General Partnership
- ☐ Limited Partnership
- ☐ Limited Liability Company
- ☐ Private Shareholding Company
- ☐ Public Shareholding Company

6. Year of foundation *

7. Sector *

Mark only one oval.

- ☐ Food processing *Skip to question 21*
- ☐ Textile *Skip to question 21*
- ☐ Chemicals *Skip to question 21*
- ☐ Pharma *Skip to question 21*
- ☐ Packaging

8. Products (if too many, insert major) *

9. No. of employees (full-time) *

Mark only one oval.

- ☐ < 20
- ☐ 20 - 49
- ☐ 50 - 99
- ☐ 100 - 249
- ☐ ≥ 250

10. Annual turnover (JOD) *

Mark only one oval.

- ☐ < 1 mil.
- ☐ 1 ≤ 5 mil.
- ☐ 5 ≤ 10 mil.
- ☐ 10 ≤ 50 mil.
- ☐ ≥ 50 mil.
- ☐ I don't know

11. Address headquarters (City) *

Mark only one oval.

- ☐ Amman
- ☐ Zarqa
- ☐ Irbid
- ☐ Russeifa
- ☐ Al-Ramtha
- ☐ Aqaba
- ☐ Mafrq
- ☐ Madaba
- ☐ Jerash
- ☐ Ma'an
- ☐ Karak
- ☐ Tafilah
- ☐ Ajloun
- ☐ Al-Salt

12. Detailed address (Including St. name)

13. Contact person (name) *

14. Position / function *

15. Phone no. *

16. Email address

17. Location of subsidiaries (if any) *

Check all that apply.

- ☐ Amman
- ☐ Zarqa
- ☐ Irbid
- ☐ Russeifa
- ☐ Al-Ramtha
- ☐ Aqaba
- ☐ Mafraq
- ☐ Madaba
- ☐ Jerash
- ☐ Ma'an
- ☐ Karak
- ☐ Tafilah
- ☐ Ajloun
- ☐ Al-Salt
- ☐ Non

18. Membership in business chamber(s) *

Check all that apply.

- ☐ Ch. of Commerce
- ☐ Amman CI
- ☐ Irbid CI
- ☐ Zarqa CI
- ☐ Other: _____

19. Certifications *

Check all that apply.

[illegible]

20. If you answered "other" on the above question, please specify *

Business development	Quick assessment of production cost drivers ('business development roadblocks')
----------------------	---

21. Please mark how costs positions have increased during last 2 years. Indicate where reduction is now 'high priority' for the company
'+ (moderate increase) +++ (high increase) Check at least one

Check all that apply.

[illegible]

22. Please mark how costs positions have increased during last 2 years. Indicate * where reduction is now 'high priority' for the company
'+' (moderate increase) +++ (high increase)

Check all that apply.

	Stable	+	++	+++	Reduction 'high priority'	I don't know
Raw material inputs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Finished / semi-finished product inputs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Distribution / transport	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Labour costs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other costs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

23. Dose the company export

Mark only one oval.

- ☐ Yes *Skip to question 24*
☐ No *Skip to question 28*

Business development - Export

24. Do you have a "Certificate of Origin" *

Mark only one oval.

- ☐ Yes
☐ No

25. Export share *

Mark only one oval.

- ☐ < 5%
- ☐ 5-10%
- ☐ 10-25%
- ☐ 25-50%
- ☐ > 50%
- ☐ I don't Know

26. Export Markets / Regions *

Check all that apply.

- ☐ Europe
- ☐ Asia
- ☐ Africa
- ☐ North America
- ☐ South America
- ☐ Australia

27. Please specify the exact countries for your export markets (Maximum 5)

Investments into
environmentally friendly
and resource efficient
production

Please indicate in which of the areas listed below
your company made / is planning to make
investments, and if support is desired

28. Resource efficiency *

Check all that apply.

	Completed	Ongoing	Planned	Non
Electricity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fuel/gas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

29. Waste reduction *

Check all that apply.

	Completed	Ongoing	Planned	Non
Solid waste	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Waster water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recycling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

30. Green energies *

Check all that apply.

	Completed	Ongoing	Planned	Non
Solar power	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wind	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recycled energy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

31. Audits *

Check all that apply.

	Completed	Ongoing	Planned	Non
Energy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Emissions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Waste	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Environmental (overall)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

32. External support (Management, Technical and Financial) *

Please indicate in which area the company think that external support is desired

Check all that apply.

- ☐ Energy
- ☐ Water
- ☐ Emissions
- ☐ Waste
- ☐ Environmental (overall)
- ☐ Not Applicable

Technical Issues About Company's Environmental Status - Water

33. What are the sources of water in the company *

Mark only one oval.

- ☐ National water network
- ☐ Owned well
- ☐ Tankers / External wells

34. Monthly water consumption *

Please specify the monthly water consumption (JOD), and in case the company is using an owned well please specify the monthly consumption in cubic meter

35. What are the main water users in the company *

Technical Issues About Company's Environmental Status - Waste Water

36. How dose the company manage its industrial waste water *

Mark only one oval.

- ☐ National sewer system
- ☐ Owned waste water treatment unit
- ☐ Centralized/decentralized water treatment facility
- ☐ Dumping in designated landfills

37. In case the company is using an owned waste water treatment unit, please specify the main uses of treated (recycled) water *

Technical Issues About Company's Environmental Status - Solid Waste

38. What is the composition of produced solid waste *

Check all that apply.

- ☐ Municipal solid waste (Paper, Cardboard, packaging materials, etc.)
- ☐ Organic waste
- ☐ Hazardous waste

39. What is the Daily/Monthly quantity of solid waste produced *

40. How the company manage solid waste *

Technical Issues About Company's Environmental Status - Energy

41. What are the energy types used by the company

Check all that apply.

- ☐ Electricity
- ☐ Fuel (Natural Gas, Diesel, etc)

42. Monthly electricity consumption (KWh) *

43. Monthly fuel consumption *

Please specify the quantity of Natural gas in "cubic meter" and for diesel in "Liters"

44. Does the company use renewable energy sources *

Mark only one oval.

☐ Yes

☐ No

45. Please specify the types of renewable energy sources used by the company *

Please indicate by "Not Applicable" if you don't use renewable energy sources

External Consultancy

46. External consultancy (management, technical and financial) *

Please indicate if you have ever implemented a consulting project (management, technical and financial)

Mark only one oval.

☐ Yes *Skip to question 48*

☐ No

47. If you answered yes, please tell us more about maximum two projects *

Mark only one oval.

☐ Move to next section

☐ Submit

External Consultancy - Project 1

48. Project 1 - Project Title *

49. Project 1 - Area of consultancy *

Check all that apply.

- ☐ Energy
- ☐ Water
- ☐ Emissions
- ☐ Waste
- ☐ Environmental (overall)

50. Project 1 - Name of consultancy contractor *

51. Project 1 - Satisfaction *

Please rate your satisfaction on the provided consultancy (1-5) were 1 is not satisfied at all and 5 is highly satisfied

Mark only one oval.

	1	2	3	4	5	
Not satisfied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Highly satisfied

52. Project 1 - Sponsoring *

Mark only one oval.

- ☐ Yes
- ☐ No

53. Project 1 - If you answered yes on question above please indicate the name of sponsor

54. Do you have other external consultancy project that you would like to share with us *

Mark only one oval.

- ☐ Yes
☐ No

External Consultancy - Project 2

55. Project 2 - Project Title

56. Project 2 - Area of consultancy *

Mark only one oval.

- ☐ Energy
☐ Water
☐ Emissions
☐ Waste
☐ Environmental (overall)

57. Project 2 - Name of consultancy contractor *

58. Project 2 - Satisfaction *

Please rate your satisfaction on the provided consultancy (1-5) were 1 is not satisfied at all and 5 is highly satisfied

Mark only one oval.

	1	2	3	4	5	
Not satisfied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Highly satisfied

59. Project 2 - Sponsoring *

Mark only one oval.

☐ Yes

☐ No

☐ Other: _____

60. Project 2 - If you answered yes on question above please indicate the name of sponsor

Social Media

61. On which Social Media platform your company uses for communication with your clients/partners

Check all that apply.

☐ Facebook

☐ Instagram

☐ Twitter

☐ Not Applicable

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