

# Good Practices from the Private Sector Development and Employment Pro- motion Project

A holistic approach to  
Photovoltaic

Baghdad – January 2024



Co-funded by the European Union



DEUTSCHE ZUSAMMENARBEIT

Implemented by  
giz  
Deutsche Gesellschaft  
für Internationale  
Zusammenarbeit (giz) GmbH

## About the Book



To support the Government of Iraq and to create job opportunities for the Iraqi people, the Private Sector Development & Employment Promotion (PSD) Project has been commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ) and co-funded by the European Union (EU). The project is implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and relies on a holistic approach that interlinks the policy level with institutional development of critical partners and capacity development for job seekers.

By doing so, the project follows a multi-level approach to reach its objectives and create sustainable solutions. On the macro level, PSD supports governmental entities to develop policies based on input and suggestions from private sector and academic representatives. On the meso level, the project supports the establishment of sustainable structures to carry on the work after the end of the project, while on the micro level, PSD works directly with beneficiaries to increase their skills and opportunities in the labour market.

We are happy to present you one exaptational example of our approach and work in this online information tool. The format allows the reader to select the topics most interesting for them and to navigate between the chapters and stories easily.

Please read about our efforts concerning the transformation of the electricity sector and our support for photovoltaic solutions in Iraq. It showcases how projects like PSD can incorporate suggestions from partners and other stakeholders over the course of the implementation period and how different activities are interlinked on the various levels.

I want to take this opportunity to thank our partners whose dedication and commitment allowed the PSD project to achieve its objectives and who were a constant source of inspiration to our implementing colleagues and the entire team.

I wish you an exciting journey within this document.

Adeline Defer  
Head of Programme, PSD Project

# How to Navigate the Book

This online-information tool can be navigated as a standard PDF by reading it page by page. However, to allow our readers to easily chose the content they are most interested in, the reader can use the cursor to switch directly between topics and pages.

In the chapter overview page, each picture symbolises a specific and self-contained story. Afterwards, the reader can use the symbols in the right bottom corner of each page to navigate the tool as shown below:

The ,Question Mark' will return the reader to this page.

The ,Home-Button' will return the reader to the chapter overview page.

The ,Return-Button' will allow the reader to view the previous page.

The ,Next-Button' will forward the reader to the next page, in case the story has another page.





# Chapter Overview



Challenges and Areas of Potential in Iraq



Supporting Policy and Strategy Development



Facilitating Public-Private Dialogues



Promoting Business Integrity in the Electricity Sector

**Macro Level; Supporting Government Policies**

Establishing Regional PV Training Institutions



Building Local Capacities



**Meso Level; Institutional Development**

Developing a Local PV Trainer Pool



Training of Local Experts



Advising MSMEs on Renewable Energy Solutions



**Micro Level; Capacity Building & Job Creation**



Co-funded by the European Union



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Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

# Challenges and Areas of Potential



## Lack of Knowledge & Education:

Historical turmoil and reliance on government spending led to a shift towards traditional business practices, limiting exposure to new technologies and educational initiatives in the renewable energy sector.



## Economic Barriers:

Iraq's oil-based economy favours fossil fuel subsidies over renewables. Centralised planning and inefficient state systems hamper economic growth. High upfront costs stop startups and households from embracing PV systems.



## Administrative Complexity:

Iraq's business community faces bureaucratic hurdles. Iraq ranks 172nd out of 190 economies in World Bank's Ease of Doing Business Index in 2020.



## Environmental Issues:

High temperatures of 50°C and beyond, dust storms, and rising dust concentrations in the air can reduce solar system efficiency and increase cleaning cost.

## Solar Resources:

A BSW study on the potential of PV in Iraq shows that Iraq has one of the highest solar radiation levels in the world. The country's abundant sunlight resources provide great potential for solar energy production.



## Entrepreneurship Promotion:

In 2020, national and international entities launched an easy online business registration platform to promote entrepreneurship and support company startups. The government plans to make it available nationwide.



## Job Creation:

Between 2012 and 2018, PV jobs globally nearly tripled, surpassing labour-intensive bioenergy to become the leading sector, with millions more jobs in the future.



## Jobs for Women:

Studies show strong job prospects for women in the PV industry. Women represent 32% of the global green energy workforce, exceeding the 22% in the global oil sector.



# Supporting Policy and Strategy Development: Interview with Prof. Bofinger



The project supported the Minister of Finance and the Prime Minister's Office with strategic advisory on policy reforms fostering private sector development, including the (re-)vitalising of the electricity sector. As one part of the activity, the project arranged for direct support from Prof Dr Peter Bofinger. Prof Bofinger is the retired Dean of the University of Würzburgs Department of Economics. From 2012 to 2017 he was a member of the Council of Economic Experts advising the German Government on economic reforms.

## Q.1. From 2020 to 2024, you supported the Private Sector Development & Employment Promotion Project in Iraq. What were your main tasks?

I tried to identify the main challenges confronting the Iraqi economy. On this basis, I analysed whether the reform proposals developed in the White Paper adequately responded to these challenges. Afterwards, I created a comprehensive reform strategy focusing on reforms of the price and transfer system and the digitalisation of the payment system.

## Q.2. During the process, you reviewed the governmental reform strategy for economic reforms. What were the main findings you noticed at the time?

The reform strategy lacks a comprehensive conceptual framework. Consequently, it enumerates a long list of measures that are not necessarily consistent and lack a longer-term perspective.

## Q.3. Afterwards, you supported the Iraqi government in formulating an implementation strategy for Iraq's economic transformation. Looking at the electricity sector, which steps did you recommend to revitalise the sector?

The electricity sector suffers from inferior services and, at the same time, very low electricity prices. Solving this hen and egg problem requires public investments that are paralleled with enforcing adequate prices for electricity services. Given the difficulty of establishing major networks, local and regional PV infrastructures, including a pool of local PV experts, could be a good starting point.

## Q.4. Over the past years, the PSD project supported the setting up of regional solar energy hubs with equipment but, more importantly, with capacity building of trainers in the fields of PV engineering, marketing and sales. How do these structures support the development of a national PV sector, and how can they be aligned with the overarching governmental strategy?

As already mentioned, decentralised solutions based on PV seem more promising than national-wide power networks. In an unstable political environment, the riskiest solution would be establishing nuclear power stations for electricity generation. PV-generated power will be widely available and continue to operate even if other systems fail due to a lack of security and centralised attention.

**Prof Bofinger, thank you for this interview and your support for the work of the Private Sector Development & Employment Promotion Project.**

You are welcome.



# Facilitating Public-Private-Dialogues: Overview

In 2021, PSD, in collaboration with its governmental partners, identified the Photovoltaic sector as a field with high potential for job creation. During the initial phase to set up capacity building and support measures to support entrepreneurs and micro-, small- and medium-sized enterprises, the project contracted BSW Solar – the German Solar Industry Association to conduct a first market-based study for tapping employment potential and innovation-driven business sector development in the solar value chain.

The survey recommended a broader approach to the topic and identified four main areas of interest to increase the importance of the Photovoltaic Sector and unlock its potential for job creation and sustainable energy production.



**The insufficient regulatory framework and the countries focus on the oil sector hinder companies and public actors to invest in photovoltaic solutions.**



**There are few initiatives and structures to connect different actors from the energy sector to discuss sustainable solutions.**



**Even though companies suffer from the unstable electricity situation, interested business owners have limited options to receive information on sustainable photovoltaic solutions.**



**There is a lack of well qualified technical experts for procuring, installing and maintaining photovoltaic solutions.**

Following up on the second point and to discuss the findings of the study, PSD organised the first public-private-dialogue for the sector. During this event, guests agreed that working on the macro-, meso- and micro levels would be necessary. After reviewing the existing legislative and regulatory framework conditions for Iraq's solar energy companies, a rough outline of potential project activities included:

- ☑ Training of trainers for the business associations from the PV sector to tackle the lack of skilled engineers, sales experts and energy innovation coaches.
- ☑ Setting up of well-equipped training facilities in various regions of Iraq.
- ☑ Facilitating further public-private dialogues to compile a list with recommendations from private and academic stakeholders to support the government in reviewing the Renewable Energy Law.

While PSD contracted the renowned *The Renewables Academy (RENAC)* to develop and implement a programme to establish regional state-of-the-art training centres, an Iraqi expert for the energy sector was hired to collect ideas and recommendations about the Renewable Energy Law.

His report "*Overview of the PV Solar Sector of Iraq*" was first introduced and discussed in two public-private dialogues (one in Federal Iraq and one in the Kurdish Region of Iraq) in 2022. The results and recommendations were shared with governmental officials during the events, who integrated some insights into their work on the new law. The Renewable Energy Law was finally confirmed by the Council of Ministers in July 2023 and is scheduled to be presented to parliament later this year.

*Please find a summary of the public-private-dialogue events on the next page.*

# Facilitating Public-Private-Dialogues: Example

## Key Facts

Baghdad: 26<sup>th</sup> July 2022

Erbil: 28<sup>th</sup> July 2022

### Main Topics:

- Present collected challenges and recommendations from the private sector in the report
- Discuss findings and include feedback
- Formulate joined recommendations

### Selected Participants:

- Dr Jassim Abdul Aziz Al-Falahi, Acting Minister of the Environment,
- Dr Abdul Kareem Al-Faisal, Chairman of the Prime Minister's Advisory Commission,
- Mr Ihsan Shimran Al-Yasri, Deputy Governor from the Central Bank of Iraq,
- Mr Saad Abdul Wahed Tuama, Head Renewable Energy Center Ministry of Electricity,
- Dr Ahmed Anwar Alwan, Head Renewable Energy Research Center in the MoIM
- Private sector representatives, including Siemens, Baghdad Renewable Energy and Sustainability Centre, Adhwhaa, Altraib, Al-Hadhaa Modern, private banks, Baghdad Chamber of Commerce, and Iraqi Federation of Industries.

During the event preparation, several private sector companies took the opportunity to speak to PSD and formulate recommendations and challenges they face in their operations related to photovoltaic, electricity and network stability. The information was compiled in the report *"Overview of the PV Solar Sector of Iraq"* and presented during the event.



**“This report shares the main private sector challenges related to legislative and regulatory conditions identified during the interviews, including a lack of coordination in the institutional setup, lack of access to finance and missing local technical expertise.”**

**Dr Abbas Balasem, Electricity Sector Expert and Author of the Study**

The attendance of several high-level representatives from the Iraqi government showed the great interest in the topic and a public-private dialogue on the topic.



**“Modern technologies such as solar energy will play an important role in diversifying our energy sector in line with Iraq's needs and our international commitments. Our ministry will support all efforts for renewable energy projects.”**

**Dr Jassim Abdul Aziz Al-Falahi, Deputy Minister of the Environment**

Especially the presence of private sector representatives and the inclusion of recommendations in the report were highlighted as beneficial for the future development of the sector.



**“We do see the challenges during the import and clearance procedure of PV products and are happy to follow these up with relevant entities. It is good to receive the findings in a coherent report, and we are happy to facilitate another workshop with private sector partners to discuss the matter further.”**

**Dr Abdul Kareem Al-Faisal, Chairman of the Prime Minister's Advisory Commission**

# Promoting Integrity in the Electricity Sector: Overview



Picture from the kick-off workshop showing the Director of the Internal Audit Department within the Ministry of Electricity.

Despite having the world's third-largest oil and substantial gas reserves, Iraq's society and economy suffer from regular power cuts and outdated infrastructure. The sector would need massive investments over the next years, but corruption is still considered a central challenge for Iraq's electricity sector. In recent years, the government has acknowledged this problem and introduced strategies and departments to tackle the challenges.

Within this context, PSD partnered with the OECD to mobilise companies, business associations, as well as the various actors of civil society alongside the public authorities. The measure aimed to foster a culture of integrity and create durable alliances in favour of integrity in the electricity sector. PSD and OECD were happy to win important partners like the Ministry of Electricity, Federal Commission of Integrity, Chamber of Commerce, Siemens Energy and the

Uruk Group to build capacities on the OECD Convention against Bribery and related instruments. To achieve its objectives, the project had several pre-defined milestones:

- **Dec 2021-Jun 2022:** Stakeholder survey and preparation of the 'Note on the Integrity Landscape of the Iraqi Electricity Sector'.
- **Sep 2022:** Kick-off workshop to present the first analysis with active participation of the European Union, OECD, PSD, the Legal Department of the Commission of Integrity, the Department of Training and Energy Research of the Ministry of Electricity, Siemens Energy and others.
- **Dec 2022:** 1<sup>st</sup> capacity building seminar for public sector actors at the OECD Istanbul Centre. Participants: Anti-Money Laundering and Countering Financing of Terrorism Office, Ministry of Electricity (MoE), Commission of Integrity (Col), Central Bank of Iraq (CBI), Supreme Judicial Council, French Anti-Corruption Agency.
- **Jan 2023:** Stakeholder survey about the capacity building measures.
- **Jun 2023:** 2<sup>nd</sup> capacity building seminar for public and private sector actors at the OECD Istanbul Centre. Participants: Anti-Money Laundering and Countering Financing of Terrorism Office, MoE, Col, Siemens Energy, URUK Co., Al-Nahrain Foundation, Chamber of Commerce, Transparency International.
- **Jul 2023:** Stakeholder survey about the capacity building measures.
- **Sep 2023:** Draft policy paper to promote integrity in the electricity sector (*See Findings and Recommendations on the next page*)
- **Nov 2023:** Presentation of results to governmental and private sector partners in a closing event.

# Promoting Integrity in the Electricity Sector: Summary of Findings

End of September 2023, OECD experts summarized the findings and recommendations from the workshops and stakeholder surveys in a final report. This report was once again reviewed by stakeholders and PSD and presented to the government of Iraq in November 2023.

## Major Findings:

- ! Iraq is a **challenging economic context** after years of struggles. Stakeholders need to consider this background while designing activities.
- ! The electricity sector is crucial in **coping with the increase in electricity demands** in a developing economy and providing fuel for the development of modern sectors.
- ! **Insufficient infrastructure and poor basic services** deprive Iraqi regions of inclusive economic growth and prosperity, while parallel systems susceptible to corruption fuel social unrest.
- ! The **lack of investments in the transmission and distribution** systems limits the positive effects of increased production and upgrading the efficiencies of existing power plants.
- ! The National Integrity and Anti-Corruption Strategy acknowledges the need for a **stronger role of CSOs to monitor public performance** but also the limitations of both.

## Recommendations:

Recognising the essentially local nature of business operations, effective approaches must also be responsive to the particular social, political, economic and post-conflict dynamics among a specific set of actors. Working on these issues in the electricity sector seems a sensible and strategic approach.

Based on the findings of the workshops and stakeholder survey, a three-layer “Strategic Plan for Business Integrity in the electricity sector” could be explored as follows:



**Market Mapping and Diagnostic:** Using this Final Review's findings to select volunteers to contribute to the next steps in the Strategic Plan and ensure that proposals meet the needs of private and public sector.



**Integrity Group:** The volunteers should form an integrity group to exchange views and work collectively to develop a framework for specific actions and inform the public about benefits of business integrity in Iraq.



**Collective Action Design:** The Integrity Group will design a proposal for joint actions in the electricity sector in Iraq, formalising the preparatory stage and leading to implementation activities in a second stage.



# Establishing Regional PV Training Institutions: Overview



With a high potential for photovoltaic-based electricity production, an ever-increasing demand for energy and a shortage of power-generating capacities, Iraq is a good example of how solar power can boost a country's economy and provide electricity for companies and citizens. To unlock the sector's potential, PSD contracted the German Solar Sector Association (BSW) to assess the market and provide recommendations for activities. In their final report from 2022, they recommended, among others, two three main activities to activate the sector's potential:



## Establishing local training and learning institutions

Without new learning institutions with modern equipment and tools, the next generation of PV engineers, technicians and sales representatives might be unable to learn the necessary skills for establishing trusted relationships with potential clients. These institutions can also foster the interest of young Iraqis to seek a career in the sector.



## Creating awareness about and demand for PV solutions

Interested individuals and companies should be connected with regional service providers through communication efforts and the training of energy innovation coaches.



## Supporting the establishment of a pool of regional PV experts

Only if regional service providers have the skills to meet the needs and demands of individuals and companies will customers benefit throughout the entire PV-value-chain.

## Setting-up new Training Institutions

As a result of the report, PSD started to look for partners who showed interest in developing the photovoltaic training infrastructure and found a first point of contact with the dedicated professionals who founded the Baghdad Renewable Energy Service Centre (BRESC). The partners agreed that the project would support the centre in setting up a state-of-the-art training centre with equipment, while BRESC would provide sufficient room and manpower for it. The centre would soon become Iraq's first institution for newly trained trainers and interested professionals who wanted to improve their skills on topics related to photovoltaics. After this initial success, PSD partnered with the University of Sulimaniyah and the Directorate of Labour and Social Affairs to anchor additional training centres in northern and southern Iraq.

In a second step, professionals from the field and training centres contributed to developing PV-related training curricula. Their inclusion ensured that future training experts not only have the necessary technical knowledge but that their skills match the demand of the local markets. With the inclusion of the well-known Renewables Academy (RENAC) the project secured the newly developed curricula match international standards (e.g. ISO 50001 on Energy Management).

The training centers will be hubs for learning about PV systems, fostering knowledge exchange and communication among specialists, companies, and potential customers. For more insights, turn to the next pages.

- Basra PV Training Centre
- Sulaymaniyah PV Training Centre
- Baghdad PV Training Centre





# Establishing PV Training Institutions: Impressions I

Basra Solar Energy Laboratory, Basra, Hay-Al-Hussein, Basra Vocational Training Centre



Inside the fully equipped PV training halls at the Basra Vocational Training Centre



Basra partners exploring the state-of-the-art training equipment at the opening of the Basra PV centre



Mr Taqi from DoLSA in Basra, emphasizing the collaborative efforts behind Iraq's three PV centres, at the opening ceremony



Deputy Basra Governor Mr. Hasan Al-Najar sharing plans to support the transition to clean energy at the opening ceremony



# Establishing PV Training Institutions: Impressions II

KRI Renewable Energy Training Centre, Kurdistan Region of Iraq – Sulaymaniyah Kirkuk Road, the University of Sulaymaniyah (UoS)



The founder of Culture Factory in Sulaymaniyah during a tour in the centre with one of the UoS staff members



PV closing event: Mr Beird, RENAC CEO holding a presentation and the Owner of 650 Gym & Dine sharing a green business model



Representatives from the UoS, GIZ, KRI, PV experts, and interested MSMEs exploring the training facilities during a tour inside the centre



Mr. Berthold Breid conducting a group discussion with the Energy Innovation Coaches at the centre

# Establishing PV Training Institutions: Impressions III

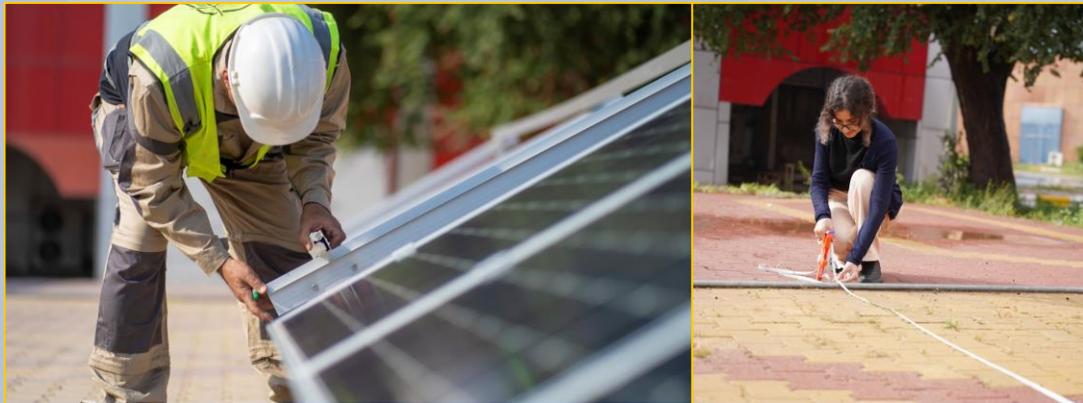
Baghdad Solar Training Centre, Baghdad, Mansour, Baghdad international Fair, Baghdad Renewable Energy and Sustainability Centre (BRESC)



Baghdad is the main business hub for central Iraq and home to many companies offering services to citizens and in demand for electricity



The Deputy Ministry of Environment and the Senior Advisor to the CBI expressing their support during the opening ceremony



New equipment is being installed by local experts and under the supervision of international professionals from RENAC



Guests from the European Union, German Embassy, GIZ and the interested public during a tour through the training facility

For details about the cooperation with the Baghdad Renewable Energy and Sustainability Centre, check Mr. Al-Dulaimi, CEO BRESC, interview on the next page.



# Establishing PV Training Institutions: Interview with Mr Al-Dulaimi, BRESC



Mr. Mohamed Shakir Al-Dulaimi, Chairman and owner of Al-Dulaimi Business Group and founder of the Baghdad Renewable Energy and Sustainability Centre (BRESC). He is a key figure in advancing renewable energy initiatives within the sector in Iraq. His dream is to create awareness for renewable energy all over Iraq and change the Iraqi electricity sector in a sustainable manner.

**Q.1. Mr Mohammed Al-Dulaimi, last year you integrated Baghdad's first training centre for photovoltaics into your campus for renewable energies. Can you tell us what led to the decision to cooperate with PSD on this project?**

BRESC was established as a Corporate Social Responsibility initiative by the "Al-Dulaimi Business Group," with the goal of achieving five objectives: Educating, spreading awareness, training, promoting, and nationalising renewable energy products. We began by focusing on education and awareness raising, gradually moving towards training specialised individuals in the solar energy field to enter the market. Our aim is to create 100,000 job opportunities within five years. In our quest to collaborate with international institutions for specialised training, we discovered the German Academy for Renewable Energy Training "RENAC" via communication with GIZ. We discussed the idea of GIZ supporting us through PSD to finance the Training of Trainers. This initiative led to the project's realisation and expanded to include two more training centres in Iraq.

**Q.2. How can we imagine the cooperation between BRESC and PSD?**

The cooperation between BRESC and PSD is highly productive. As BRESC, we possess significant expertise that required enhancement through training with international experts. The PSD programme supported the training of our instructors with RENAC Academy, certifying them to develop the PV market further.

**Q.3. Can you share some key milestones and achievements of the solar power training centre since its establishment?**

Following the opening of the Baghdad Renewable Energy training centre, we conducted our first training course for Sales Engineers graduating 14 participants. We plan to intensify our training courses next year to activate our "Training to Job" model. This model involves training individuals and offering job opportunities to those who excel in the course. We already have upcoming projects that will provide many job opportunities, set to launch by the end of the year.



Mr Al-Dulaimi guiding guests from the public and private sectors on a tour around Baghdad Renewable Energy Centre



# Establishing PV Training Institutions: Interview with Mr Al-Dulaimi, BRESC

## Q.4. What specific services/programmes does your centre offer, and who should apply for training?

BRESC provides various services in renewable energy and environmental preservation, including:

1. Conducting energy audits for buildings.
2. Providing free consultations and offering the best energy solution scenarios.
3. Hosting training workshops and courses in renewable energy and sustainability, covering sales engineering, technical engineering, technician training for solar energy, energy auditing, system sizing for different solar energy solutions, and solar software system training (PV SYST, PV SOL, SketchUp).

Anyone interested in gaining practical experience or developing their skills in solar systems, linking knowledge with the market, is encouraged to apply for our training courses.

## Q.5. How will the Baghdad PV training centre contribute to solar power expertise in the country and the region?

The centre will contribute significantly by:

- Offering specialised educational programmes: The centre can design and implement specialised educational programmes covering a diverse range of topics related to solar energy. These programmes can target students, engineers, government employees, and business owners to gain necessary knowledge and skills.

- Targeting not only technicians or engineers, but also individuals involved in the civil work of installation and maintenance of solar systems to ensure they are knowledgeable about handling solar system products correctly.
- Establishing partnerships with both public and private sectors for training: Strengthening collaboration with government entities and companies operating in the solar energy job market will help develop expertise.
- Providing training on installation, sizing of solar energy, and raising awareness among workers and consumers on choosing high-efficiency products to meet demand and improve the quality of life for Iraqi people. This will create a positive impact on the perception and adoption of solar energy within the community, and therefore fosters the development of the solar market.

## Q.6. Can you discuss any plans and initiatives that BRESC has in store for the Baghdad PV training centre?

Our primary focus is to implement the "Train to Job" programme, providing job opportunities alongside training to create 100,000 jobs in renewable energy within five years. This initiative aims to develop the Iraqi market and activate local capacities in this field.

## Q.7. What message would you like to convey to readers interested in the PV sector?

Renewable energy is essential to mitigate climate change's impacts. Individual roles match governments' significance in daily habits and awareness. In Iraq, the PV system promises opportunities, necessitating a positive community impact via top-notch products and a robust solar energy foundation for long-term prospects.

# Building Local Capacities: Overview of Activities

As outlined in the overall strategy and emphasised during several meetings with private and public sector partners, Iraq's PV sector needs to have not only well-equipped training institutions but also a pool of local experts. They will improve electricity access for companies and citizens, increase the sector's environmental sustainability and function as a catalyst for economic development and job creation. The German Solar Association identified photovoltaic as an industries capable of initiating virtuous cycles at local, regional, and national levels if sufficient technical experts were to be trained.

Therefore, in 2021, PSD, in collaboration with the Renewables Academy (RENAC), organised awareness-raising sessions for local PV specialists and enthusiasts, entrepreneurs, and small- and medium-sized company owners interested in sustainable energy solutions. During the sessions, the team highlighted the potential of solar energy in Iraq and informed about training opportunities.

With the implementation of the "Market and business development for solar power in Iraq" project in 2021, PSD and RENAC aimed to provide a comprehensive educational programme creating a national PV expert pool.

These activities targeted individuals and company owners covering the entire value chain of solar PV projects, including:

- project development & system design
- Wholesale & PV marketing
- installation, operation and maintenance.

The sustainable design aimed to initiate the first set of trainers for new PV educational centres, addressing demand and supply via three key activities:



## Energy Innovation Coaches (EIC):

To enhance the PV market through knowledge sharing, and connecting stakeholders, the programme offers training and mentoring for PV professionals. In their future role as EICs, they can advise businesses on utilising PV systems and enhancing energy efficiency through energy-saving practices. After completion of the programme, all EICs are ISO-50001 certified.



## Master Trainers:

This programme aims to establish a pool of national PV master trainers responsible for conducting train-the-trainer seminars. The training in Germany and Iraq introduced eight selected participants to innovative technological solutions, modern training methods and specialised knowledge about installing, maintaining and marketing PV solutions.



## Regional Trainers Pool:

In the next step, the programme supported the master trainers in conducting their first lessons to future PV technicians, engineers and sales representatives. After completion of the courses, 21 Iraqi trainers can cover a variety of qualification levels and specialisations.

*As a last step, the programme supported local partners in setting up a web-portal for solar energy in Iraq. Please find more information on the next page.*

# Building Local Capacities: A Solar Power Web Portal for Iraq

In September 2023, Solar Iraq, an interactive web portal, was developed and launched to consolidate the newly available PV expertise, services, and directories into one comprehensive ecosystem. This online platform serves as a connecting resource for energy professionals, enthusiasts, and clients interested in clean energy solutions in Iraq. It offers a wealth of information on PV and energy efficiency applications, market developments, and directories for PV trainers, training institutions, energy consultants, and companies operating within the solar energy sector in Iraq and the Kurdistan Region of Iraq (KRI). Therefore, this digital space promotes the growth and adoption of solar PV technologies in the country. Solar-Iraq is a multilingual resource available in Arabic, Kurdish, and English at the following link: <https://solar-iraq.com/>.



The Solar Web Portal is designed to work on all devices to ensure interested individuals can access it at home and on the way.

**Solar PV & Energy Efficiency Services**

- PV Trainers**  
Experts for training of PV engineers, PV sales engineers & PV technicians
- PV Training Centres**  
Equipped with the latest technology and hardware
- Consultancy**  
Innovative approaches to tackle energy management
- Company Directory**  
Presentation of solar suppliers and sector representatives

SERVICES

The Solar Web Portal provides an overview of established service providers, training institutions and other related professionals.

الصفحة الرئيسية | نبذة عنا | الطاقة الشمسية الكهروضوئية | خدمات | مركز المعرفة | العربية | كوردبي | English

## تجمع خبراء الطاقة في العراق

مرحباً بكم في Solar-Iraq، بوابة الإنترنت باللغات العربية والفردية والإجليزية - مورد فريد من نوعه لاجراء الطاقة وكل من لديه شغف بحلول الطاقة النظيفة من العراق. استكشف حلول الطاقة الشمسية الكهروضوئية واتخاذ الطاقة للمستخدمين النهائيين والمهنيين والمشاريع والمهندسين والمدرسين والأفراد والمهنيين مع وزارة شؤون المستهلكين. توفر الطاقة الكهروضوئية الشمسية إمدادات طاقة آمنة وبموثوقة ومستدامة. دعونا نطور موارد المستهلكين للتجمع في العراق.

Home

The website is available in Arabic, Kurdish, and English to connect professionals and potential clients throughout the country.

On the next page you can find an interview with the Managing Director of RENAC about the design and goals of the intervention:

# Building Local Capacities: Interview with Silke Jenssen, RENAC



Ms Silke Jenssen, RENAC's Project Director, expertly oversees training programmes and academic initiatives, excelling in guiding diverse project teams and focusing on capacity-building services. She holds a Master's in Sustainability Science and Policy and a Diploma in International Studies. She will elaborate on RENAC's pivotal role in supporting PSD's development of the clean energy sector in this interview.

**Q.1. Dear Ms Jenssen, our readers may not know the RENAC Energy & Climate gGmbH. How would you describe the goals and strategies of your organisation?**

RENAC, headquartered in Berlin, Germany, is a leading international organisation specialising in training and capacity building in renewable energy and energy efficiency. We firmly believe that knowledge is crucial in ensuring clean and secure energy supplies for a sustainable future. Our commitment to providing training and capacity building perfectly aligns with the increasing demand for expertise in these markets. By disseminating vital know-how, RENAC contributes to the development of a skilled workforce and empowers financial institutions and policy-setting bodies to make informed decisions in the green energy sector.

**Q.2. How did your organisation become involved in the PV project in Iraq, and what are you aiming to achieve in the country?**

In 2020, RENAC partnered with GIZ Iraq to launch a project aimed at leveraging solar energy potential in Iraq. The project started with a Scoping and Concept

Study, focused on skill development for MSMEs, innovation, and job creation in the solar PV sector. Identified opportunities included enhancing local MSMEs and fostering a skilled workforce. RENAC's approach involved capacity-building in market development. In 2021, RENAC continued this effort, aiming to establish a sustainable framework beyond the project's duration. The strategy focused on knowledge transfer, establishing training centres, and networking to equip the private sector with skilled professionals for Iraq's solar energy growth.

**Q.3. Can you explain the key activities you implemented to reach the project goals?**

We began by strengthening regional capacity through establishing PV training center and conducting extensive train-the-trainer programmes. These efforts aimed to cultivate a pool of national solar PV trainers. Therefore, we developed industry-specific training materials in English, Arabic, and Kurdish catering to the specific needs of Iraq's solar energy sector.

Another vital initiative included training Energy Innovation Coaches to promote energy efficiency in businesses. These coaches were equipped with the necessary skills and knowledge to advocate for sustainable practices and cultivate a culture of sustainability in the Iraqi workforce.

Lastly, we prioritised efficient communication and information sharing by introducing a trilingual web portal (English, Arabic, and Kurdish). It is a knowledge hub and a marketing platform, breaking down language barriers and facilitating collaboration among stakeholders in the private PV market.



## Building Local Capacities: Interview with Silke Jensen, RENAC

**Q.4. The programme worked on several levels, training trainers and energy innovation coaches, but you also designed training curricula for the training of PV engineers and sales agents. What were your thoughts when you developed this approach?**

When we developed this approach, our primary goal was to ensure that the training programme addressed the entire value chain of solar PV projects comprehensively. We identified the need to provide qualifications and skills that spanned all critical aspects of the PV sector. This approach aimed to cater to a diverse audience, including individuals and professionals working in private sector companies involved in various stages of solar PV projects, including PV Technicians, PV Sales Engineers, and PV Engineers.

**Q.5. What would you describe as the main challenges during the project's implementation, and how did you overcome them?** Our project encountered numerous hurdles in the field. The COVID-19 pandemic disrupted our in-person plans, leading to unforeseen delays. Additionally, visa complications for our trainers added another layer of complexity. Managing intricate financial transactions in Iraq required creative workarounds. Technical issues on-site, including blackouts and unreliable internet, presented unexpected obstacles. Nevertheless, our team displayed remarkable adaptability and problem-solving skills, steering us back on track to achieve our goals. Despite these challenges, our journey with Iraq has been truly remarkable. Every project participant was engaged, incredibly helpful, and supportive, seamlessly collaborating to find solutions.

**Q.6. What long-term impacts/benefits do you anticipate PV will have on Iraq?**

The future appears promising for PV solar development in Iraq! With abundant sunlight, there's huge potential, but the market is still growing, and we need the right funding to make it happen. What's exciting is the changing mindset in Iraq, leaning towards energy conservation and securing a sustainable energy supply. As this shift continues. PV solar is set to transform Iraq's economy with sustainable, clean energy solutions. Our goal is for PV solar to bolster Iraq's energy independence, minimize blackouts, stimulate the economy, and create a smaller environmental footprint. This aligns perfectly with global efforts to tackle climate change and ensure sustainable energy. To make this happen, we need more private companies in the PV market, creating jobs and ensuring a safe, reliable, and sustainable energy supply. It's not just about changing energy sources; it's about transforming Iraq's future for the better!



Iraqi PV experts participating in a Master Trainers programme in Berlin

# Developing a Local PV Trainer Pool: Overview

Establishing a pool of qualified PV trainers is key to ensuring a sustainable and self-reliant renewable energy sector. It will empower local expertise and promote a widespread knowledge transfer in solar PV technology. In cooperation with RENAC, PSD developed a high-quality trainer pool of 21 Iraqi trainers across Iraq (KRI, Baghdad, Basra).

## Key Training Topics:

The train-the-trainer programme aims to equip Iraqi trainers with comprehensive knowledge and essential skills in various PV topics, including:

- PV Application
- PV Technology
- Small Scale PV Grid-connected Systems
- PV Off-grid Systems
- PV Diesel Hybrid Systems
- Planning of PV Diesel Hybrid Systems
- Business Models for Photovoltaic
- Business Plans for Photovoltaic Projects
- Energy Storage Application and Technology

## Target Groups:

After the intensive training, the 21 trainers are well-prepared to transfer their knowledge and sector-specific skills to diverse target groups, covering diverse qualification levels and specialisations in the solar PV technology:



**Technicians:** The training covers installation, operation, and maintenance.



**Engineers:** The curriculum includes system design, quality assurance, installation, and monitoring.



**Sales Engineers:** Trained in economics, marketing, contracting, and product quality assurance.



Closing Ceremony of a PV ToT training in Sulimanyiah



PV Trainers and some PSD staff inside the Baghdad Renewable Energy Training Centre

## Developing a Local PV Trainer Pool: Testimonials



“My experience at the KRI Renewable Energy Training Centre was key for my career growth. During the Training of Trainers course, I didn't just expand my professional network across the nation; I also acquired crucial skills in connecting with trainees and trainers. This experience significantly enriched my expertise in various PV sectors including PV Engineers, Sales, and PV Technology. The newfound knowledge and skills were the spark behind establishing my *Geen Activation Organisation*, a pursuit focused on environmental initiatives.”

*Avin Marsum, PV Installation and Maintenance Trainer, KRI Renewable Energy Training Centre*



“I have learned innovative training methods and delved deeper into the realms of design and feasibility studies. Drawing from training experience and overseeing approximately four training courses, nearly half of the students entered the job market specialising in solar energy. I remain in touch as they continue to deliver excellent projects.”

*Ahmed Al-Eyada, PV Engineering Trainer, KRI Renewable Energy Training Centre*



“I strongly encourage anyone considering enrolling in the centres' training programmes. They will have the chance to enrich and build upon their theoretical knowledge with market-based skills in renewable energy technology. Engaging with diverse professors from various global training domains has significantly improved my ability to facilitate dialogue and effectively convey information to trainees with various expertise levels. I have gained experience in various solar energy specialisations. I am certain that PV training centres will play a major role in establishing a strong foundation of trained PV professionals, which will attract capital without the need for external expertise.”

*Sally Qussay, PV Trainer, Baghdad Renewable Energy Training Centre*

Read the full interview with Ms Qussay here:



# Training of Local Experts I: Mr Safa, PV Expert



Safa Mohammed Matlob, a skilled Electrical Power Engineer, distinguishes himself as a Solar Systems Technician for both state-owned and private companies. Equipped with a B.ENG degree, Safa's journey in renewable energy took a significant leap through the Solar PV Technicians Train-the-Trainer programme at the PV Centre in Al-Sulaymaniah. Safa started receiving job offers after the training and applied the new-found knowledge to his role in high-voltage power transmission stations.

Safa is interested in exploring the intricacies of photovoltaics. He believes that working with photovoltaic systems would allow him to contribute to sustainable energy solutions and provide him with the opportunity to learn and innovate constantly. Safa was determined to find training that would enable him to delve deeper into the technical aspects of solar energy and gain hands-on experience in designing and implementing photovoltaics.

Safa started his journey into the world of solar energy by applying for the PV Technician training. The Solar PV Technicians Train-the-Trainer programme, held at the Al-Sulaymaniah PV Training Centre, covered an extensive range of topics, from didactical training to the nitty-gritty of PV system technology.

Safa received hands-on training in safety protocols, design fundamentals, wiring diagrams, hand tools usage, assembly of PV systems, and the crucial aspects of monitoring and maintenance practices. The curriculum was designed to equip technicians with the skills needed to start working as experts in the PV Industry.

For Safa, certain topics stood out, particularly the in-depth coverage of the design, installation, maintenance, and inspection of solar PV systems. Armed with this knowledge, he gained a new set of skills that would expand his role as a Solar Systems Technician.

On top of the sector-specific knowledge and skills, the training helped him build a strong network. It gave him the chance to showcase his expertise to potential employers and clients. The connections he made opened doors to job opportunities and new horizons in the renewable energy sector.

Although Safa primarily worked with high-voltage power transmission stations, the training broadened his skills to include the intricacies of Direct Current (DC) systems. This expansion of expertise opened up new possibilities in his career, enabling him to contribute to a wider range of projects.

## Training of Local Experts II: Mr Safa, PV Expert

As Safa continued his work in the solar industry, he applied the skills acquired from the training in designing, installing, inspecting, and maintaining DC systems in power transmission stations. His collaboration with executing companies became more informed and efficient.

Reflecting on the challenges facing the PV sector in Iraq, Safa highlighted the affordability issue and the need for widespread awareness and education. He believes that reputable companies, trained professionals, high-quality equipment, and support from banks offering loans for households and PV start-ups could address these challenges.

Despite the sprints, Safa remains optimistic about the potential for solar energy as an income-generating sector in Iraq. He emphasised the importance of accessible education for all levels of expertise, envisioning a future where solar power could play a pivotal role in the country's energy landscape.

Safa thinks that the PV Centre plays a crucial role in addressing these challenges.

**“As the industry gains trust and efficiency through education, the centre becomes a sign and engine of the PV sector progress in Iraq.”**

He has ambitious plans for his future. While Safa plans to continue working for various companies, he also aims to receive specialised practical training in large-scale solar power stations connected to the national grid at medium voltage. His vision encompasses personal growth and a commitment to the broader development of the solar energy sector in Iraq.



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# Training of Local Experts II: Interview with Dr Ammar, Energy Innovation Coach



Dr Ammar, was trained as an Energy Innovation Coach (EIC) and works as a professor at the University of Baghdad's College of Engineering. His extensive academic background includes a Master's degree focusing on solar storage tanks, and a Ph.D. in solar heating systems for agriculture. As such he already trains future engineers and publishes research papers on PV system developments. His technical background made him an ideal candidate for the first EIC training programme.

## Q.1. Why do you believe energy efficiency is crucial for MSMEs, households, and buildings in Iraq? What benefits can it bring to them?

Energy efficiency is crucial for households, factories, facilities, and company buildings in Iraq for several reasons. It offers long-term cost savings and helps protect the environment. Many novel diseases in Iraq are due to air pollution caused by factories and oil institutions. Anyone seeking to reduce their energy expenses and minimize their carbon footprint can benefit from my services.

## Q.2. Why do you think solar power is not being used efficiently in Iraq as a sustainable energy source, especially when Iraq has one of the highest radiation levels?

The lack of public awareness about the potential, efficiency, and long-term cost-effectiveness of solar energy is a major factor. Most people rely on low-cost national electricity or generators and are unaware of the long-term

benefits of solar power. Additionally, Iraq lacks well-trained professionals in this field, and the equipment used by many service providers falls short in terms of quality. Therefore, this lack of confidence in the viability of solar energy solutions leads many to avoid the adoption of solar energy altogether.

## Q.3. In your opinion, what is necessary to increase awareness among businesses and households on the topic of sustainable energy usage?

Iraq is facing economic and environmental crises, including unemployment, drought, and air pollution. Awareness campaigns showcasing the benefits of renewable energy, providing tips, resources, and access to experts, are necessary to promote energy efficiency and sustainable energy usage among individuals, households, and companies. The government can also play a pivotal role in addressing these crises by prioritising sustainable energy initiatives.

## Q.4. What initially attracted you to work in the energy sector? How did you learn about the Energy Innovation Coaches programme?

My journey to becoming an Energy Innovation Coach began with a realisation of my lack of experience and practical skills in the sector. This gap had hindered me from pursuing my passion for contributing to my country's transition to clean energy and putting my theories into practice.

This realisation fuelled my determination to delve into the practical aspects of energy innovation. I learned about the Energy Innovation Coaches Programme through the Iraqi Engineers Union during RENAC's workshop to explore the potential of sustainable energy in Iraq. This workshop served as the catalyst for my next journey. Inspired and motivated, I visited RENAC's website and submitted my application for the training programme, marking the beginning of an enriching experience.



# Training of Local Experts II: Interview with Dr Ammar, Energy Innovation Coach

“Energy plays an indispensable role in modern life, but the increasing concerns about climate change and a shifting global energy landscape demand innovative solutions”

## Q.5. What kind of training did you receive?

During the training programme, I received online training and live sessions from international experts on renewable energy and its applications. I also had extensive five-day in-person training in Suli on energy efficiency and management in practice. Additionally, becoming an ISO-certified energy expert, I obtained a TÜV ISO 50001 Lead Auditor training certificate online. At the final stage of the training, I participated in two-day field visits to conduct supervised energy audits for companies interested in energy efficiency. This immersive and holistic training experience played a pivotal role in elevating my skills and knowledge to new heights.

## Q.6. What is your role as an Energy Innovation Coach?

I am an energy efficiency and PV expert. I provide my services to factories, households, businesses, and buildings. I conduct energy audits of all their energy sources and collect data on energy consumption calculations and tools. I analyse this data and produce a report with recommendations to reduce energy consumption and use of sustainable sources of energy. I also perform maintenance visits to ensure the services' sustainability upon request. Three other PSD-trained energy experts and I have recently offered our first energy audit to 650 Gym & Dine.

## Q.7. What is the process of conducting energy audits?

We start with determining the necessary data, identifying the focal point for contact, and defining the scope of the company's building. After collecting the data, we analyse the building's energy consumption, identify efficiency measures and solar potential, and conduct financial assessments. Then, we issue a report where we advise the client on energy management strategies, ensuring regulatory compliance and environmental impact. The report suggests customised solutions and implementation support to help them make informed decisions for cost savings and sustainability.

## Q.8. What key energy-saving solutions do you recommend to MSMEs?

Common energy-saving recommendations include replacing regular lights with sensor lights to prevent energy consumption when a room or hall is unoccupied, utilising solar air and water heaters, and installing thermal insulation walls.



Dr Ammar with 650 Gym & Dine representative during the energy audit of the company's energy sources



# Advising MSMEs on Renewable Energy Solutions: Page I



Poster in the 650 Gym & Dine facility

The 650 Gym & Dine from Baghdad is a rather unusual company for Iraq, and nothing symbolises this better than an inconspicuous poster on the walls of its meeting room. In modest words, it informs visitors about their vision and how the company started organic farms to ensure their healthy food supply, a recycling system to reduce waste and other already implemented measures to become a green and more sustainable frontrunner. To a neutral observer, it may already be apparent here that the company has always been one step ahead of its time.

**“ We wanted to create a green oasis where people can heal their bodies and souls ”**

Founded in 2018, the company started in times of trouble and uncertainty. With the ISIS thread not yet over and the impacts of the civil war still visible in Iraq's infrastructure but also in the hearts of many, the founders wanted their company to become part of (re-)building the nation. Or, as Faisal Sheikh Khazal, Business Development Executive, puts it: “As a community, it was difficult after the ISIS crisis to bring people together. The society was unsure about itself, and most of the green in the city had disappeared over the past years. Our idea was that sports and a place to enjoy organic and healthy food could play an important role in bringing people back together.”

As a result, the founders started the 650 Gym & Dining – a place where young and old, male and female, could meet regardless of their religious affiliation and political conviction. A place that should become like an oasis in the desert.

## Challenges Along the Way

For the 650 team, producing and selling organic products, caring for the environment and supporting a healthy lifestyle were never just distant dreams. From the beginning, the management knew that a sustainable approach to their business could also solve the company's many challenges. "All matters around electricity were probably the most critical obstacles we encountered. When I returned to Iraq, I knew nothing about generators or private fuel suppliers.

And since the generator business was and is not regulated, the fuel costs and maintaining the generators were a constant driver of our expenditures," Faisal explains. Reducing the electricity consumption was a business decision essential for the company's survival, even if it matched the management's vision.



Switching from electronic to mechanical equipment was an important step. ©650 Gym & Dining

A first attempt to combine the vision with the necessities of Iraq was to switch the equipment in the gym to an entirely mechanical set-up. As always, any new solution comes with its own challenges: procuring and maintaining the necessary equipment in Iraq was not always possible, and the management had to invest resources in finding partners and building capacities. The same applied to the dream of offering organic foods. Ultimately, the company had to build a network of farmers who had the knowledge and were willing to produce based on the company's needs.

**“ We are trying to be sustainable and support Iraq's economy, but sometimes, we have to compromise to match our ideas with the country's reality ”**



# Advising MSMEs on Renewable Energy Solutions: Page II



360: a green oasis in the middle of the dusty city offering healthy and sustainable products and services. ©650 Gym & Dining

## Going Green or Going Down

Eventually, like for every business, the customers and the balance between costs and income decide about success or failure. Even with many measures already implemented, electricity remains a significant challenge. For the management, addressing this challenge is therefore not only another step to follow their vision of being a sustainable frontrunner but also an economic necessity.

“We can't do everything simultaneously, but ultimately, reducing our energy costs is an important step to secure the company's future”

## The Next Steps

Looking into renewable energies was always part of the company's innovation plan. However, seeking advice on creating a sustainable electricity setup was difficult because international certified experts were just not available.

“Many companies who claimed being able to help us in the past were untrustworthy and knew little about the complex challenges. Hearing the Energy Innovation Coaches are ISO certified and come from Iraq naturally sparked our interest”

For the 650 management, it is essential that the solutions not only work in Europe or the USA. They need solutions that come from Iraq, are offered in Iraq and can be applied in the Iraqi context. For Yassar Assi, Director Of Food And Beverage, this could become a potential game-changer: “As an example, we plan to open a bakery as part of our restaurant. Running a bakery is an electricity-intensive task. If we can receive support to procure energy-efficient equipment, produce our own electricity and set up sustainable production lines within the Iraqi environment, I would consider this process a huge success.”

Even though their journey together has just started, for 650 and the Energy Innovation Coaches, these advisory services could be a first step that helps to change the country sustainably. Both sides believe that, if successful, their example might inspire other businesses in Baghdad and the surrounding areas.

Read the full interview with 650 here: [↓](#)



# Thank you for reading



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## ANNEX I: Interview with Ms Sally, PV Trainer



Ms Sally, an experienced PV trainer at the Baghdad Renewable Energy Training Centre (BRESC) with a Master's in Renewable Energy Engineering and five years of experience in the field. As the Executive Director at BRESC and a part-time solar energy engineer at Nupader Co., she offers specialised training in solar energy, system design, site assessments, and energy audits, serving clients in Iraq and the Kurdistan Region.

### Q.1. How has your experience at the PV Centre positively influenced your career or professional growth?

It is evident that the Iraqi market holds promise but lacks substantial expertise in the field of renewable energy. Despite academic studies in this field, they remain predominantly theoretical and lack practical application linked to market needs. Personally, this was my experience when I entered the market of renewable energy. Working at the Baghdad Centre for Renewable Energy Sustainability provided me with a wealth of experience. This experience expanded further after I joined the training programme. It helped me understand technology and the global market on a broader scale and adapt it to suit the Iraqi market.

### Q.2. What specific skills or knowledge did you gain from the train-the-trainer programme that you found most valuable?

What stood out to me in the training programme was its incorporation of various skills, ranging from solar energy technology and installation to

managing solar energy projects of different scales. Moreover, the programme focused on the trainers' techniques in delivering this information, enhancing my educational skills and organising knowledge transfer to new trainees. This is crucial in my journey to contribute to building expertise.

### Q.3. How do you plan to use/apply the new skills and knowledge in your role as a trainer at the centre?

The skills acquired from the training programme, as mentioned earlier, have reinforced my prior knowledge in the field of renewable energy. I've utilized the information delivery skills in training courses as a solar energy trainer at the training centre, adapting these skills according to the Iraqi reality. Simply transferring global expertise is insufficient without training individuals on adapting it to meet the needs and diverse work conditions in Iraq. This, in my view, distinguishes a good trainer, and it's what I aim to do.

### Q.4. From your viewpoint, how well-prepared will graduates be after completing training at this centre to enter the job market or use their skills in real-world scenarios?

As mentioned earlier, the academic study of renewable energy in Iraq lacks practical application and relevance to the job market. This results in graduates not being adequately prepared for employment. However, based on my observation of many graduates' eagerness to learn during my work at the Baghdad Centre, I am confident that the centre's training programmes meet their aspirations. The programmes comprehensively cover various aspects of solar energy projects, including technology, training methods, operational scenarios, installation, and project management.



## ANNEX I: Interview with Ms Sally, PV Trainer

This will significantly help them bridge the gap between theoretical knowledge and real-world applications. I believe that finish their training, they will be well-prepared for employment. Receiving hands-on training from a reputable centre will help them land more job opportunities with energy companies in Iraq.

**Q.5. In a few words, what standout achievements or successes have you witnessed since the establishment of the training centre?**

Since the establishment of the training centre, numerous training courses have been conducted, directly contributing to capacity building in solar energy. A significant advantage of the training centre is its collaboration with a German academy experienced in the renewable energy field (RENAC). This partnership facilitated the smooth transfer of global expertise to Iraqi personnel.

**Q.6. What would you say to someone considering enrolling in our PV training programmes based on your experience?**

I strongly encourage anyone considering enrolling in the centres' training programmes. They will have the chance to enrich and build upon their theoretical knowledge with market-based skills in renewable energy technology.

**Q.7. In what ways do you think the Solar Training Centre will contribute to the growth and development of the renewable energy sector?**

The success of any industry worldwide necessitates trained personnel. Therefore, the training centre will significantly contribute to preparing these personnel and integrating them into the job market to build expertise.

It will create a strong foundation for attracting capital, particularly when investors do not need to seek external expertise. This scenario will lead to the development of Iraq's renewable energy sector.

**Q.8. Could you share a short testimonial about the impact of this training centre on your skill development or knowledge enhancement?**

Participating in the centre's training programme has been incredibly rewarding, both personally and intellectually. Engaging with diverse professors from various global training domains has equipped me with a wide range of training techniques. This experience significantly improved my ability to facilitate dialogue and effectively convey information to trainees with different expertise levels. I have gained expertise in various solar energy specialisations, including marketing strategies, economic feasibility, system types and sizes, technician work methods, engineers' roles in different systems, and project distinctions concerning space, capital, and energy efficiency.

**Ms Sally, thank you very much for the interview and your valuable insights.**

You are welcome.

## ANNEX II: Interview with the 650 Dine & Gym Management team (1)



### Q: When was your company founded?

Faisal Khazal: The company was founded in 2018.

### Q: What was your idea behind the company?

Faisal Khazal: We wanted to be part of rebuilding the nation after two decades of war. In addition, the founders wanted to offer services to heal people who struggled physically and mentally. Promoting an activity and a healthy lifestyle was our way of contributing to the rebuilding and development of the country.

So we decided to turn an old warehouse into a sustainable gym.

### Q: What were the biggest challenges in the first couple of years?

Faisal Khazal: We had several obstacles. Electricity was a permanent issue, with a good ten hours of daily power cuts. Dealing with generators and fuel suppliers proved difficult since the market was and is not regulated, and the fluctuating costs complicated developing and implementing a business plan.

In addition, as a community, it was difficult after the ISIS crisis to bring people together. The society was unsure about itself. We thought that sport could play an important role in bringing people back together. That was another reason why it was clear for us to open a gym where both genders could train together and show that living and sporting together is good.

### Q: Can you briefly tell us about your dreams and future ideas for the company?

Faisal Khazal: First, one part of our mission statement is to reach all regions of the country with our approach and services, following our vision to heal the nation. During the 90s, and even after 2003, the country's focus lay almost solely on Baghdad, but if we want to recover as a society, we need to reach other less focused areas. Our dream was to give people services that could ensure a healthy life – physically and mentally.

Second, we have something that we call visible pollution. All the green in the city became concrete. So, we wanted to offer a green oasis where people could heal their bodies and souls.

That's why we started the gym, that's why we opened restaurants with organic food products, and that's why we even support the arts with our gallery.

### Q: What services does your company offer?

Faisal Khazal: In the gym, we offer various services. Our journey took us from just providing exercise equipment to offering full-service courses for sports like yoga and others in an eco-friendly way.

### Q: What challenges have you encountered regarding the energy situation in Iraq?

Faisal Khazal: All matters around electricity were probably the most challenging obstacles we encountered when the company started.

When I returned to Iraq in 2021 to build a gym, I knew nothing about generators or professional fuel suppliers. Because in my past, this was not necessary.

## ANNEX II: Interview with the 650 Dine & Gym Management team (2)

We had many issues with the fuel cost and maintaining the generators because of the informal nature of the sector. As a result, our expenditures were much higher than anything I encountered in Europe.

Since Iraq has experienced periods of instability, even simple things like getting the right equipment were challenging. Buying, importing and maintaining our equipment was difficult under these circumstances.

Considering that we are trying to be sustainable and support Iraq's economy by procuring local, we often had to compromise because – especially at the beginning – we could not always match our expectations with the country's reality.

Today, I would say our patience has paid off. Even though we are still working on many factors, I am happy that we could create a self-sufficient system of maintenance sustainability, and that's great.

### **Q: How did you learn about Energy Innovation Coaches?**

Faisal Khazal: Through personal contacts. Reducing our ecological footprint was always part of our innovation plan, but seeking advice on creating a sustainable company setup was difficult. In the end, many companies who claimed to be able to help were not trustworthy and knew little about the complex challenges.

So, when we heard the Energy Innovation Coaches are ISO certified and come from Iraq, this naturally sparked our interest. We now have the opportunity to speed up the process. The idea is aligned with our vision, but because the services are available now but weren't in the past, we could do this step now.

### **Q: Why are you interested in talking to an energy innovation coach?**

Faisal Khazal: If you look at our vision and mission, we were always interested in sustainability, which is attached to our initial dream. Reaching out to the community and offering a mind-changing, green and healthy experience is a constant journey. If we can make the next step on this journey, we might be able to convince others to follow your examples. The Iraqi economy is in a transformative state, and we believe now is the perfect opportunity to lead by example.

### **Q: What does protecting the environment mean to you?**

Faisal Khazal: There are two main reasons why I believe protecting the environment is essential. One is based on my thoughts as a professional expert, and one on my plans as a private person. We all have children, and we want them to live in a healthy environment and have a high living quality. I personally can feel that being in Iraq is not always healthy. We face visible pollution that I would like to reduce. On the other hand, as businessman, we need to develop our company to stay interesting for our customers. Our members pay good money to access our services, we need to give something back to remain relevant and answer their call for green solutions.

### **Q: Have you always considered your ecological footprint in your professional decisions?**

Faisal Khazal: A part of me always thought about health, sport and green development. However, as a businessman, I needed to learn that using a green vision can also be healthy for the company and lead to higher revenue in the long term. From a business point, turning a business green comes with many costs. We needed to set clear budgets based on the possibilities of the stage the company is in. We can't do everything at once. But as mentioned earlier, reducing our energy costs is an important step to secure the company's future.

## ANNEX II: Interview with the 650 Dine & Gym Management team (3)

### Q: Where do you see the boundaries of the assessment

Faisal Khazal: At the moment, we are speaking about the gym and the restaurant. The gym is mostly mechanical because the equipment is already fully mechanical. We need to speak about lighting, cooling and isolation issues. For the restaurant, we expect it to be more intensive as we have a lot of appliances which use electricity.

### Q: What would be a good outcome of the advisory service for you?

Faisal Khazal: I will never look at it from my business alone. So, if we can have a successful audit, becoming greener means we will also become more successful. But in addition, I believe that going green and hopefully inspiring the rest of the country will make Iraq more interesting for its own citizens, visitors from other countries and investors.

Yassar Assi: The company needs to increase the efficiency of its operations to become more cost-effective. Our energy consumption and production are one big part of our operational costs, and it is logical for us to reduce them whenever possible.

I hope that the assessment and the advisory services will provide me with information about the quality of our machines, the efficiency of our operation and the awareness of our staff regarding energy-saving measures. Energy efficiency must become an integral part of our daily operations.

If we have to pay more but can increase the quality of our services and reduce operational costs, it will make the company more competitive in the future.

We have valuable products. Green is part of our brand identity. Even in our retail part, we have a recycling cycle, which is unique for Iraq. We have already established many measures to reduce our ecological footprint, but energy remains the biggest possibility for us to improve further.

To give you a specific example: We plan to open a bakery as part of our restaurant. Running a bakery is an electricity-intensive task. If we can receive support to procure energy-efficient equipment, produce our own electricity and set up sustainable production lines, I would definitely consider this process a success.

### Q: Do you have other plans relating to environmental protection?

Faisal Khazal: We do have an innovation plan. We are working on waste management. Recycling is a topic that will stay with us for a long time, but we are willing to be patient and take on challenges step by step.

We also want to become paperless and are currently trying to establish a digital invoicing system for our partners and customers.

Together with our efforts to work on energy efficiency, I believe we have enough work for the upcoming years.

**Thank you for the interview and the interesting conversation.**

*Faisal Khasal is Business Development Executive at Wolf Gym*

*Yassar Assi is Director Of Food And Beverage at 650*

# IMPRINT

## Good Practices from the Private Sector Development and Employment Promotion Project A holistic approach to Photovoltaic

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