

Final Technical Delivery & Impact Report

National Occupational Standards Development, Competency-Based Curriculum Design & Capacity Building for Construction and Renewable Energy Occupations in Anbar & Ninewa Governorates.

UNOPS, Iraq | 2025

Executive Summary

From November 2024 to May 2025, UniHouse successfully designed and implemented a comprehensive National Occupational Standards development and capacity-building program for community beneficiaries, NGO staff, and public-sector personnel in Anbar and Ninewa Governorates, Iraq. Commissioned under UNOPS' Local Infrastructure in Rural Anbar (LIRA) project (RFP/2024/53569), the initiative included the development of NOS for construction and renewable energy occupations aligned with the UK National Occupational Standards (UK NOS) framework, covering competency units, performance criteria, knowledge and skills descriptors, and assessment evidence requirements. Full competency-based curricula were designed from these standards and delivered to 133 participants across 10 training sessions. Key deliverables — including bilingual NOS documents, competency-based training materials, an O&M Manual and practical field-based instruction — were fully achieved.



UNOPS and UniHouse representatives at the project launch ceremony, coordinating the start of capacity-building activities under the LIRA initiative in Iraq

Project Objectives

- Develop National Occupational Standards (NOS) for construction and renewable energy occupations — including roads O&M, solar PV systems, and water treatment operations — aligned with the UK NOS framework, and design full competency-based curricula derived from those standards.
- Enhance understanding of Health, Safety, Security, and Environment (HSSE) standards.
- Promote adoption of solar and RO-based water technologies.
- Improve sustainability practices in housing, roads, and WASH services.
- Support inclusive and locally-led infrastructure management.



Pre-training briefing session in Ramadi led by UniHouse expert with UNOPS attendance, introducing participants to water treatment operations and maintenance

The training course was outstanding and addressed essential topics in solar energy

Eng. Samil Eleya Bhnim
Director of the Studies Department – Planning Directorate – Ninewa Governorate

Training Themes & Delivery

UniHouse delivered six modular training programs tailored to local realities:

- O&M and HSSE for Housing Units (Beneficiaries)
- Sustainable O&M of Roads (Public Sector)
- Benefits of Solar and PV Systems in Construction (Public Sector)
- Recycling and Management of Construction Waste (Public Sector)
- Operation and Maintenance of Compact WTP Units (Public Sector)
- Operation and Maintenance of RO WTPs Powered by Solar Energy (Public Sector)

Each course was grounded in a full NOS document developed in English and Arabic, structured in alignment with the UK NOS framework with occupational profiles, competency units, performance criteria, and assessment evidence requirements. Competency-based curricula were designed directly from these standards and delivered through bilingual instruction, localized examples, and hands-on field sessions across Sinjar, Karma, Mosul, and Ramadi — totaling 204 training hours over 34 days.

Monitoring & Evaluation (M&E)

UniHouse applied its Capacity Development Evaluation Framework (CDEF) model, integrating:

- Evaluation Domains: Program relevance, facilitator effectiveness, logistics, and content quality.
- Mixed-Method Data: Quantitative surveys and qualitative feedback.
- 94% average positive satisfaction rate ("Very Good" or "Good").
- Pre/post-training assessment of knowledge retention.
- NOS and curriculum quality review conducted against UK NOS framework standards, with technical feedback from UNOPS and sector stakeholders incorporated prior to final submission of all standards documents and training materials.
- 91% overall attendance rate.

Trainees received digital certificates of completion and copies of the user-focused bilingual O&M Manual.

Human Resources

- 12 UniHouse trainers engaged: 6 PhDs, 2 MScs, 4 BScs.
- Expertise in civil engineering, water operations, HSSE, sustainability, and public works.

This training was valuable and outstanding. It significantly increased my knowledge, especially in safety and the operation and maintenance of water treatment units.

Ali Mohammed Jasim Gharib
Technical Manager – Anbar Water Directorate



Trainees conducting water quality tests during a practical session on RO unit maintenance, emphasizing the integration of laboratory and field techniques under expert supervision

Training Participation Summary

Training Theme	Governorate	Location	Participants	Duration (Days)
O&M + HSSE – Housing Units	Ninewa	Sinjar	25	4
O&M + HSSE – Housing Units	Anbar	Karma	25	4
Sustainable O&M – Roads	Ninewa	Mosul	10	3
Sustainable O&M – Roads	Anbar	Ramadi	10	3
Solar PV in Construction	Ninewa	Mosul	10	3
Solar PV in Construction	Anbar	Ramadi	11	3
Construction Waste Management	Ninewa	Mosul	11	3
Construction Waste Management	Anbar	Ramadi	11	3
RO WTP Powered by Solar	Ninewa	Sinjar	8	4
Compact Unit WTP	Anbar	Karma	18	4
Total			133	34 Days

Outcomes & Impact

- Exceeded participation targets (133 vs. 130).
- Skills directly applied to local housing and infrastructure.
- Strengthened WTP operations through real-site technical training.
- Increased awareness of solar applications in post-conflict recovery.
- Gender-inclusive design: 39% of participants were women.
- 98% of participants reported improved confidence in technical O&M.



Group of trainees participating in the Constructed Housing Units Operation & Maintenance Training in Mosul, delivered by UniHouse under the UNOPS capacity-building program

The Recycling and Management of Construction Waste Materials course was comprehensive and highly relevant to our work.

Eng. Noor Abass Fachle
Chief Engineer & Acting Head of Design Department – Ninewa Sewerage Directorate

Conclusion

This project marks a milestone in UniHouse’s partnership with UNOPS and its contribution to Iraq’s post-conflict recovery and infrastructure sustainability. Through UK NOS-aligned occupational standards development, full competency-based curriculum design, bilingual training manual production, and a rigorous M&E framework, the initiative delivered validated NOS documents, practical training materials, and lasting capacity improvements for individuals, institutions, and communities across Anbar and Ninewa.

All deliverables were met or exceeded, and UniHouse remains available to support future capacity-building and infrastructure resilience efforts in Iraq and the region.

O&M Manual & Dissemination

- NOS documents and training manuals produced in English and Arabic, structured in alignment with the UK NOS framework and used as the institutional competency baseline for each occupation.
- Visual-first design, using real project photos.
- Included content for:
 - Housing maintenance (for beneficiaries)
 - RO and Compact Unit WTPs (for engineers)
 - HSSE principles and preventive practices
- Distributed digitally and in print during training sessions.

Sustainability Recommendations

- Establish technical support channels and focal points within directorates.
- Plan refresher and advanced trainings (e.g., solar troubleshooting).
- Institutionalize HSSE and O&M best practices into SOPs.
- Encourage knowledge-sharing platforms and internal ToTs.
- Integrate similar capacity-building into all future infrastructure projects.
- Monitor long-term post-training outcomes (3–6 months follow-up).
- Translate key O&M Manual sections into field-friendly job aids.

Alignment with National & Donor Priorities

- Supports Iraq’s National Development Plan and WASH Strategy.
- Aligns with UNOPS’s commitment to inclusive recovery, localization, and climate resilience.
- Promotes public-sector ownership, especially in remote districts.



On-the-job training delivered at an operational pump station in Ramadi, where UniHouse engineers provided real-time guidance on system diagnostics and HSE practices.