



Shared Prosperity Dignified Life



Distr.  
LIMITED  
E/ESCWA/CL1.CCS/2021/WG.12/Report  
11 May 2021  
ORIGINAL: ENGLISH

**Economic and Social Commission for Western Asia (ESCWA)**

## **Report**

### **Capacity Building Workshop on “Promotion of Small-Scale Renewable Energy Technologies and Applications and Energy Efficiency for Rural Development in Lebanon”**

**Chaqdouf Municipality, Akkar, Lebanon, 6 April 2021**

#### **Summary**

The UN Economic and Social Commission for Western Asia (ESCWA) organized a capacity-building workshop at the Chaqdouf municipality on 6 April 2021 titled “The Use of Renewable Energy and Energy Efficiency Technologies and Applications for Rural Development in Lebanon”. The workshop aimed at supporting the outcomes of the “Regional Initiative for Promoting Small-Scale Renewable Energy Applications in Rural Areas of the Arab Region (REGEND)” project funded by the Swedish International Development Cooperation Agency (Sida), in conducting a series of theoretical and practical capacity-building workshops that cover food manufacturing, labelling, and packaging; digital marketing and social media branding and advertising; entrepreneurship and cooperatives; embroidery; and local and rural development and governance.

The workshop enabled the participants, mainly rural women, to acquire theoretical and technical capabilities in small-scale renewable energy applications, financing and regulatory mechanisms, energy conservation, rural development, empowerment of women, and the inter-linkages between water, energy, and food based on scientific foundations.

This report presents a summary of the implemented capacity-building workshop, the major points resulting from the analysis of the evaluation forms, and the recommendations received from the participants.

---

Note: This document has been reproduced in the form in which it was received, without formal editing.

## Contents

I.	INTRODUCTION .....	3
II.	RECOMMENDATIONS .....	3
III.	MAIN TOPICS OF DISCUSSIONS .....	3
	A. GENERAL OVERVIEW OF THE CURRENT STATUS OF THE LEBANESE ELECTRICITY SECTOR AND METHODS TO reDUCE ENERGY CONSUMPTION.....	3
	B. SMALL-SCALE RENEWABLE ENERGY APPLICATIONS IN RURAL AREAS.....	4
	C. POTENTIAL OF SMALL-SCALE RENEWABLE ENERGY IN LEBANON’S RURAL DEVELOPMENT.....	4
	D. CLOSING SESSION.....	4
IV.	ORGANIZATION OF WORK .....	4
	A. DATE AND VENUE .....	4
	B. OPENING.....	5
	C. PARTICIPANTS .....	5
	D. DETAILS OF THE PRESENTERS .....	5
	E. AGENDA .....	5
	F. EVALUATION.....	5
	ANNEX I: AGENDA.....	7
	ANNEX II: LIST OF PARTICIPANTS.....	10

## I. INTRODUCTION

1. The UN Economic and Social Commission for Western Asia (ESCWA) organized a capacity building workshop at the Chaqdouf municipality on 6 April 2021 titled “The Use of Renewable Energy and Energy Efficiency Technologies and Applications for Rural Development in Lebanon”.
2. The main objective of the workshop was to support the outcomes of the “Regional Initiative for Promoting Small-Scale Renewable Energy Applications in Rural Areas of the Arab Region (REGEND)” project funded by the Swedish International Development Cooperation Agency (Sida), in conducting a series of theoretical and practical capacity-building workshops that cover food manufacturing, labelling, and packaging; digital marketing and social media branding and advertising; entrepreneurship and cooperatives; embroidery; and local and rural development and governance .
3. The workshop was attended by 17 participants representing rural women active in productive activities and vocational school students in Chaqdouf village in Akkar, Lebanon.
4. The workshop was conducted in one day and consisted of three sessions. Section II of this report summarizes the workshop’s recommendations while Section III provides a summary of the presentations and the main topics of discussions held during each session. Section IV reviews the organization of work, including information regarding the workshop agenda, participants and a summary of the participants’ evaluation outcome. The full documentation of the workshop is available at the following address:

<https://www.unescwa.org/Renewable-Energy-EE-Technologies-Rural-Development>

## II. RECOMMENDATIONS

5. The workshop concluded with the following participants’ recommendations:
  - a) Expand the scope of the project to implement a solar micro-grid for the village.
  - b) Continue building the awareness of local institutions, municipalities and the general public on the role of small-scale renewable energy applications in rural development by focusing on agri-food applications such as solar dryers and cookers.

## III. MAIN TOPICS OF DISCUSSIONS

6. Presentations and discussions are summarized in the following sections which are organized according to the substantive sessions of the workshop.

### A. GENERAL OVERVIEW OF THE CURRENT STATUS OF THE LEBANESE ELECTRICITY SECTOR AND METHODS TO REDUCE ENERGY CONSUMPTION

7. This session addressed the electricity sector’s woes and their socio-economic and environmental impact, especially on rural areas. The session covered the technical and financial shortcomings in the sector and detailed the different recovery costs and tariff rates of the national utility and private generators, to lay the ground for the potential of renewable energy in minding the supply-demand gap and provide cost savings.
8. The session also offered an outline of the opportunity cost of the electricity rationing on productive activities, especially for rural women, and on children’s study disruptions, and the use of diesel generators and its impact on cost and competitiveness of businesses.
9. The participants were provided with a wide range of measures ensuring energy conservation in lighting, electrical appliances, heating and cooling, and cooking.
10. The session concluded with an educational video on energy efficiency in households and an overview of the inter-linkages between agriculture and food security, water, and energy thereby setting the foundation for the renewable energy applications to follow.

## B. SMALL-SCALE RENEWABLE ENERGY APPLICATIONS IN RURAL AREAS

11. The session started with outlining the differences between fossil fuels' finite and polluting nature and sustainable energy's infinite and clean resources. The presentations then proceeded to highlight the various uses of renewable energy and segregated the different renewable energy resources.
12. The above was followed by two short educational videos detailing the current global status and potential of renewable energy in general and the role of solar energy in particular.
13. The session also included a mapping of the solar and wind potential in Lebanon, and the current status and capacity of decentralised solar energy systems in the country, before embarking in depth into the components making up renewable energy systems and their modes of operation.
14. The session highlighted the various solar energy applications and technologies, including solar heating systems, solar photovoltaic (PV) systems, solar PV pumping systems, solar micro-grids, solar home systems, large-scale solar farms, and solar cookers and dryers.
15. Other technologies including wind energy, biogas, bioenergy and briquettes, geothermal/ ground source heating pumps, and micro-hydro systems were also detailed. The session concluded with a round of examples of small-scale renewable energy applications for rural development and women empowerment from Lebanon and across the world.

## C. POTENTIAL OF SMALL-SCALE RENEWABLE ENERGY IN LEBANON'S RURAL DEVELOPMENT

16. The session started with an overview of the role of renewable energy in rural development through the enhancement of energy security and grid reliability, and the mitigation of the impact of fuel price volatility.
17. The session then proceeded to detail the impact of renewable energy on productive activities through lower energy bills and improved business competitiveness, and the circular rural economy. The presentation also covered the role of renewable energy in women and youth empowerment through entrepreneurship and revenue creation, thereby placing them in leadership and decision-making positions. It also presented the advantages of small-scale renewable energy applications in an integrated approach, indicating its crucial placement within the water-energy-food nexus.
18. Success cases of the REGEND project in Jordan and Tunisia were presented to support these statements. In addition, the session tackled the regulations and financial frameworks and shortcomings. The session concluded with a tutorial video detailing in-house step-by-step instructions to create a solar cooker.

## D. CLOSING SESSION

19. The workshop sessions were closed by Mr. Jil Amine, Sustainable Development Officer, Climate Change and Natural Resources Sustainability Cluster (CCNRSC), ESCWA, covering the next milestones of the REGEND project in Akkar, and the topics to be covered in the upcoming capacity-building workshops. The closing statement emphasized the fruitful discussions during the workshop and the intention to continue coordinating and collaborating with the represented stakeholders. The participants submitted their feedback and recommendations in the distributed evaluation forms and received certificates of attendance.

# IV. ORGANIZATION OF WORK

## A. DATE AND VENUE

20. The capacity-building workshop was held by ESCWA on 6 April 2021 at the Chaqdouf municipality in the governorate of Akkar, Lebanon. The workshop activities started at 09:00 am and ended at 01:00 PM, as per the agenda and detailed concept note.

## B. OPENING

21. The workshop was formally opened by Mr. Paul Saoud, the head of the Municipality of Chaqdouf, who thanked ESCWA and Sida for their support to the local community in Chaqdouf, especially in light of Lebanon's economic and financial crises and the pandemic. He highlighted the municipality's current and future plans for women empowerment and productive activities in the village. He also highlighted the essential role of the REGEND project in powering the sewing workshop in times of increasing power rationing and the importance of capacity building in enhancing the economic situation of women in the village.

22. Following the head of the municipality's statement, Mr. Jil Amine, CCNRSC, ESCWA covered the REGEND Project, its objectives, main pillars, expected accomplishments, sustainability, and approach. Mr. Amine presented an overview of the small-scale renewable energy pilot projects and capacity-building activities that will be conducted in Chaqdouf, highlighting the criteria that have led to the selection of the village and the needs' assessment that was conducted to inform the activities. The assessment identified the capacity building needs of the rural population, especially women, and municipality staff, in areas related to their rural livelihood activities, including food safety, quality, good manufacturing, labelling and packaging practices, marketing and digital marketing skills necessary to improve business revenues and production.

23. The opening remarks were concluded with a discussion of the workshop's agenda and expected outcomes.

## C. PARTICIPANTS

24. The workshop was attended by 17 participants representing rural women active in productive activities in Chaqdouf, Akkar, Lebanon.

## D. DETAILS OF THE PRESENTERS

25. Presentations were made by the following renewable energy experts:

- Mr. Jil Amine, Sustainable Development Officer, Climate Change and Natural Resources Sustainability Cluster (CCNRSC), ESCWA.
- Mr. Omar Kaaki, Research Assistant, Climate Change and Natural Resources Sustainability Cluster (CCNRSC), ESCWA.
- Ms. Jessica Obeid, National Consultant, ESCWA.

## E. AGENDA

26. Presentations and discussions were made over three sessions. The agenda of the workshop is summarized below:

- a) Welcome Notes and Agenda Setting
- b) General Overview of The Current Status of The Lebanese Electricity Sector and Methods to Reduce Energy Consumption
- c) Small-Scale Renewable Energy Applications in Rural Areas
- d) Potential of Small-Scale Renewable Energy in Lebanon's Rural Development
- e) Closing Statement and Next Steps

## F. EVALUATION

27. An evaluation questionnaire was distributed to the participants to assess the relevance, effectiveness, and impact of the workshop. The feedback received from the 17 respondents was very positive with 100% of them agreeing that the overall quality of the workshop met their expectations and that the sessions were successful in improving their knowledge in the tackled topics, and that the content was clear, well-structured, and presented in an interactive and engaging manner. Likewise, 100% of the respondents agreed that the workshop achieved its purpose and objectives, that there was enough time allocated for the workshop and for each session, and that the venue was suitable for the workshop.

28. Below are some of the suggestions, remarks, and needs expressed by the participants in their evaluation forms:

- a) For future workshops, there were requests to apply more practical methods of presentation, such as using real equipment, and explaining their function.
- b) Expand the project to cover some of the basic electricity needs of the houses in the village, especially that the number of houses is relatively low.
- c) Establish a representative office for ESCWA in Chaqdouf.

## ANNEX I: AGENDA

<b>Tuesday 06 April 2021</b>	
<b>09:00-09:30</b>	<b>Welcome notes</b>
<b>09:30-10:00</b>	<p><b>Opening Session</b></p> <p><b>Welcoming Remarks:</b></p> <ul style="list-style-type: none"> <li>– Mr. Paul Saoud, Mayor, Chaqdouf</li> <li>– Mr. Jil Amine, Sustainable Development Officer, Climate Change and Natural Resources Sustainability Cluster (CCNRSC), ESCWA --REGEND Project, its objectives, main pillars, expected accomplishments, and approach, and capacity building workshops</li> <li>– Introduction of participants</li> </ul>
<b>10:00-10:30</b>	<p><b>Session 1: General Overview of The Current Status of The Lebanese Electricity Sector and Methods to Reduce Energy Consumption</b> Ms. Jessica Obeid, Consultant, ESCWA and Mr. Jil Amine</p> <ul style="list-style-type: none"> <li>– Overview of the electricity sector in Lebanon, especially rural areas</li> <li>– Socio-economic and environmental impact of power rationing</li> <li>– How to reduce electricity bills?</li> </ul> <p>Questions and answers</p>
<b>10:30-11:15</b>	<p><b>Session 2: Small-Scale Renewable Energy Applications in Rural Areas</b> Ms. Jessica Obeid and Mr. Omar Kaaki, Research Assistant, CCNRSC, ESCWA</p> <ul style="list-style-type: none"> <li>– Types of renewable energy resources of benefit to rural areas: Solar energy Wind energy Hydro power Bioenergy</li> <li>– Examples from Lebanon and around the world: renewable energy for rural development and women empowerment</li> </ul> <p>Questions and answers</p>
<b>11:15-11:45</b>	<b>Coffee break</b>
	<p><b>Session 3: Potential of Small-Scale Renewable Energy in Lebanon's Rural Development</b> Ms. Jessica Obeid and Mr. Jil Amine</p> <ul style="list-style-type: none"> <li>– The role of renewable energy in rural development</li> <li>– The role of renewable energy in entrepreneurship</li> <li>– The role of renewable energy in women and youth empowerment</li> <li>– Regulations of renewable energy in Lebanon</li> <li>– Financing mechanisms for small-scale renewable energy</li> <li>– Do-it-yourself: solar cooker</li> </ul> <p style="text-align: right;">Questions and answers</p>

<b>12:30-13:00</b>	<b>Closing statement, visit to the solar water heater implemented by REGEND project and next steps.</b>
--------------------	---



## اللجنة الاقتصادية والاجتماعية لغربي آسيا (الإسكوا)

### ورشة تدريبية حول "استعمال الطاقات المتجددة صغيرة السعة وترشيد استخدام الطاقة لفائدة التنمية الريفية في لبنان"

الشدوف، عغار، لبنان  
6 نيسان/أبريل 2021

#### البرنامج

الثلاثاء 6 نيسان/أبريل 2021	
التسجيل	09:30 - 09:00
الجلسة الافتتاحية	10:00 - 09:30
كلمات ترحيبية:	
<ul style="list-style-type: none"> <li>السيد بول سعود، رئيس بلدية الشدوف</li> <li>السيد جيل أمين، مسؤول في شؤون التنمية المستدامة، قسم الطاقة، مجموعة تعزيز المناخ واستدامة الموارد الطبيعية، الإسكوا - تقديم مشروع "REGEND" وأهدافه وأنشطته وأهداف سلسلة التدريبات ومحتواها</li> <li>التعريف بالمشاركين</li> </ul>	
الجلسة الأولى: لمحة عامة: واقع الكهرباء في لبنان وكيفية توفير استخدام الكهرباء	10:30 - 10:00
الآنسة جيسكا عبيد، مستشارة الإسكوا و السيد جيل أمين	
<ul style="list-style-type: none"> <li>واقع الكهرباء في لبنان، وخصوصاً في المناطق الريفية</li> <li>خسائر لبنان البيئية والاقتصادية والاجتماعية بسبب انقطاع الكهرباء</li> <li>كيف تخفّض فاتورتنا الكهربائية؟</li> </ul>	
أسئلة وأجوبة	
الجلسة الثانية: تكنولوجيات الطاقة المتجددة صغيرة السعة في المناطق الريفية	11:15 - 10:30
الآنسة جيسكا عبيد والسيد عمر الكعكي، باحث مساعد، الإسكوا	
<ul style="list-style-type: none"> <li>أنواع الطاقة المتجددة ذات المنفعة في المناطق الريفية <ul style="list-style-type: none"> <li>طاقة الشمس</li> <li>طاقة الرياح</li> <li>طاقة المياه</li> <li>طاقة الهواء</li> <li>طاقة المواد الحيوية</li> </ul> </li> <li>أمثلة من لبنان وحول العالم: مشاريع طاقة نظيفة للتنمية الريفية وتفعيل دور المرأة</li> </ul>	
أسئلة وأجوبة	
استراحة قهوة	11:45 - 11:15
الجلسة الثالثة: إمكانيات الطاقة المتجددة في المنطق الريفية	12:30 - 11:45
الآنسة جيسكا عبيد والسيد جيل أمين	
<ul style="list-style-type: none"> <li>الطاقة المتجددة لمنفعة وإنماء الريف</li> <li>الطاقة المتجددة لريادة الأعمال والإبداع</li> <li>الطاقة المتجددة لخلق فرص العمل، وتمكين المرأة والشباب</li> <li>قوانين الطاقة المتجددة في لبنان</li> <li>كيفية تمويل مشاريع الطاقة المتجددة صغيرة السعة</li> <li>نظّم بنفسك: مطبخ شمسي</li> </ul>	
أسئلة وأجوبة	
لمحة عن التدريبات المقبلة وزيارة نظام الطاقة الشمسية في المعنى	13:00-12:30
ختام الدورة التدريبية	

## **ANNEX II: LIST OF PARTICIPANTS**

1. Aya Mouin Shkhaydem
2. Aline Mohammad Othman
3. Mireille Nidal Shwar
4. Marlyn Elias Saoud
5. Raymonda Michel Abdeyem
6. Ibtisam Sarkis
7. Jamila Saoud
8. Bouthayna Bin Ismail
9. Nahla Elias Khalil
10. Souad Al Mourani
11. Houwayda Hasan Yehya
12. Safaa Ahmad Khodr
13. Rima Mohammad Dbouk
14. Iman Youssef Dboul
15. Maria Boueyjian
16. Shadia Al Khodr
17. Camilia Aziz Al Bayeh