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# TRAINING PROGRAM FOR INSTALLING AND MAINTAINING SOLAR WATER HEATING ENERGY SYSTEMS

FINAL REPORT

MAY, 2011

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# **TRAINING PROGRAM FOR INSTALLING AND MAINTAINING SOLAR WATER HEATING ENERGY SYSTEMS**

FINAL REPORT

USAID JORDAN ECONOMIC DEVELOPMENT PROGRAM

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## **DISCLAIMER:**

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# INTRODUCTION

The South Company for Construction and Development (SCCD) is a privately held company, wholly owned by the King Abdullah II Fund for Development (KAFD), mandated by His Majesty to develop the South of Jordan through projects that will bring about social and economic benefits to Jordanian citizens. In partnership with the Jordan Industrial Estate Corporation (JIEC) and Al-Hussein Bin Talal University, SCCD established the Ma'an Development Company (MDC) with a mission of developing, managing, and promoting the Ma'an Development Area (MDA), a project of four interrelated clusters, the Residential Community, Industrial park, Hajj Oasis, and Skill Development Center.

Having Training as one of MDA four main clusters and since Solar Energy is one of the great resources south of Jordan enjoys and having the highest solar irradiation around Jordan in Ma'an, in addition, one of the objectives of the Jordanian Government is to increase dependence on renewable energy instead of fossil oil energy all encouraged MDC to promote solar energy in the area including solar power generation, water heating and industrial applications. To provide professional technicians for existing companies and for future expected demand in that sector locally and regionally applications and in partnership with Vocational training Corporation, MDA started solar training in Ma'an VTC and the first training course which included 15 graduates as the first batch are all hired by the Millennium company. The second batch included 15 trainees and they will finish the training by June 2011.

The main beneficiaries of this training program include Millennium Energy Industries in addition to other private sector companies working in solar thermal systems installation in Jordan like Hanania and NUR. Ma'an Development Company (MDC), Vocational Training Corporation, and Training and Employment Fund (TEF) are the main stake holders for the project.

The solar workshop in Ma'an VTC will pave the road for future solar training in Ma'an and will help achieve one of USAID Jordan Economic Development Program main objectives of creating jobs for Jordanians through partnering with the above mentioned stakeholders. The VTC will promote employability of the program's graduates through understanding market demand which already reflected back into the training program (workshop equipments, curriculum, trainers and trainees, etc.) that qualify trainees to match such demands.

# PROGRAM DESCRIPTION

The program included the following Main activities:

- Rehabilitation and refurbishment of current workshop at Ma'an VTC.
- Enhancement of Curriculum to be used at the VTC.
- Training of Trainers.
- Promotion and outreach.
- Training delivery.

# PROGRAM OBJECTIVES

Support the establishment of a training program for installing and maintaining solar water heating energy systems at the VTC in Ma'an area. This will lead to:

- Creating new job opportunities for Jordanians (Minimum of 30 students will be trained and matched with jobs every year).
- Building the capacity of VTC trainers in the design and delivery of relevant training courses, which will improve the quality of training at the VTC.

# TARGET GROUP

The targeted group is students who finished 10th grade and would like to pursue technical Education at VTC.

# PROGRAM PREPARATION

The following activities were performed:

- Refurbish the Training workshop and class (list of activities attached)
- Equip the workshop with needed training equipment and tools (List attached)



- Preparation of Training Material (copy of training material attached )
- Training of Trainers :

Training of trainers was implemented on 3 different occasions:

- Training of Trainers on equipment received through AIDalil Co. for 1 full day
- Training of Trainers on the Training material through Dr. Ayman Maaitah for 3 full days
- Training of Trainers on Solar Irradiation Measurement Equipment through National Energy Research Center for 1 Day.



- Actual training of students: actual training courses were performed where first group was hired by Millennium Industries after graduation and the recent group is arranged with Youth for Work Program to handle their employment after graduation.



# SPECIAL FEATURES

To link this program with Renewable energy and energy efficiency awareness and potential applications:

- PV power generation modules were added on the top of the class room to educate the students about solar power generation
- Solar Irradiation Measurement equipment were installed at the Industrial Park where the students will visit the site and learn how this data will be used for large scale solar power generation projects.





# OPENING CEREMONY

Opening ceremony took place on 15 March 2011 with Presence of USAID, MDC, VTC and the local community where workshop was officially opened.



# AWARENESS CAMPAIGN

On 22nd of March an awareness campaign took place at Ma'an Vocational Training Center where VTC students and students from AlHussein Bin Talal University in addition to a group of school teachers attended awareness presentations arranged by Maan development Company where subjects of Energy Efficiency, Solar Water Heaters, Electricity safety and photovoltaic applications were discussed with presenters from Kingdom Electricity Company, Nur Solar systems Company and National Energy Research Center.



# APPENDIXES

## **APPENDIX A: LIST OF TRAINEES**

First group of Trainees: students who passed the training and employed by Millennium:

1. Hassan Al-Masri
2. Hammam Abu Darwish
3. Jalal Abu Nasser
4. Abdelrahman Al-Tahhan
5. Ismail Helal
6. Yousef Al-Neimat
7. Hamzeh Kreishan
8. Nasser Ebedo
9. Yehya Al-Neimat
10. Abdallah Abu Tarboush
11. Ahmad Shukri
12. Mohammed Al-Helleh
13. Omar Al-Mahameed

List of Current group of Trainees Program which is arranged with Youth for Work Program:

1. Suleiman Awajan
2. Abdelfattah Abu Saleh
3. Suhaib Awajan
4. Mohammed Abu Qudeiri
5. Mussab Al-Tahhan
6. Omran Abu Al-Feilat
7. Mohammed Al-Tahhan
8. Yehya Kreishan
9. Mo'ath Al-Mahameed
10. Ahmed al-Bahri
11. Abdelkarim Al-Khatib
12. Yousef Al-Khatib
13. Raed Al-Khawara
14. Yasser Al-Khatib
15. Ali Abu Karaki
16. Alaa' Hussein

## **APPENDIX B: SOLAR WATER HEATERS INSTALLATION AND MAINTENANCE CURRICULUM**

(Attached Separately)

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