

Basic points to open a solar-lantern workshop with SOLUX

1. The following table shows the cost of a new solar-lantern workshop with SOLUX-lanterns.

Kumasi SOLUX-Workshop			
Set of parts for 100 lanterns	€ 46,00	100	€ 4.600,00
Tools	€ 180,00	1	€ 180,00
Sample lantern ready to use	€ 86,00	1	€ 86,00
Sum			€ 5.516,00
Transport of lanterns	payment by client		
Duties	payment by client		
Travel expenses of trainer	payment by BMZ Germany		
Accommodation of trainer	payment by client		
Pocket money for trainer (10\$/day)	payment by client		

2. You need locally in the developing country an organisation to run the workshop and sell the lanterns.
3. Sell the lanterns and do not give them away for free.
4. In any case you should arrange some ideas how you can help your clients to finance the lanterns. For example: The user pays 50 % of the kerosene price he would spent for a kerosene lantern, or you negotiate a small loan with a local bank or a specialized bank like the Garmeen Bank.
5. The workshop trainer is from SES (Senior Expert Service Bonn/Germany) and is paid by the German government.
6. The training takes about 10 to 15 work-days.
7. The staff of the workshop should **not** exceed 2-3 persons and one workshop manager.
8. Usually the workshop staff gets a small salary for every day they work.
9. Invest in advertisement and marketing. Produce a written product information to sell the lanterns. Discuss these points with your senior expert.
10. Normally we send the shipment by sea. We recommend to negotiate duty free import.
11. We know from experience that shipping by boat and clearance through customs may take several months. Please keep this in mind.

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1. Terms and Conditions

SOLUX sells pre-packed boxes containing:

- Components for 100 lamps (with different accessories where applicable)
- 100 solar modules
- Tools for assembly shops at manufacturing cost from the Dresden factory

If desired, SOLUX will organise transport to the building site by order and at the cost of the purchaser. SOLUX maintains an export license from German customs that will circumvent sales tax. Customs clearance at the destination country is the responsibility of the purchaser.

SOLUX passes down the guaranties of its component distributors to the purchaser. An additional guaranty for assembled systems can only be given by the assembly shop operator.

As the manufacturer, SOLUX is responsible for the correct selection of the components (and if applicable, any market-driven adjustments to the products). SOLUX makes available all necessary documentation (assembly instructions and the user manual are available in all major languages).

SOLUX can provide a senior expert for the assembly shop installation and training, who can set up the initial operation on-site. It is also possible for a team member (or several) to be trained at the workshops in Dresden.

The purchaser is responsible for the allocation of suitable assembly shop rooms and employees. 2/3 of the payment is due when the order is placed, the rest 1/3 on delivery from Dresden/Germany.

Delivery time is about 2 to 8 weeks, depending on inventory levels.

2. Rooms, Equipment, Employees

A room of about 20 to 30 square meters is required. The rooms should be clean and bright. Electrical power is useful for the operation of a drill and a soldering iron, but is not required as SOLUX assembly shops can be operated without electrical power. A hand drill and a small 6-V-soldering iron will be delivered if there is no electrical power available.

The assembly workshop should be equipped with 3 workbenches. Five square meters of cabinet or shelf space should be also available for a clear arrangement of the components, semi-assembled products and tools (at least one lockable cabinet for valuable parts is also necessary.)

The number of employees required depends mainly on the number of lamps that are to be sold. The equipment allows for up to 5 employees in maximum per assembly shop working at the same time, but a reasonable number of employees is 3-4. It takes about 4 work hours to assemble a complete solar lantern.

A responsible shop manager, who should have technical training or adequate engineering experience, is required. One of the employees should be knowledgeable in electrical engineering, in order to be able to measure electricity and voltage, and to carry out fault diagnostics. All other employees can be trained; they should have craftsmanship and willingness to work diligently and accurately.

Work that needs to be done is mainly:

- Cutting (scissors) and gluing of raw materials
- Drilling, riveting, soldering, joining
- Controlling, testing
- Assembly

3. Beginning of operation

A trainer of the “Senior Expert Service” (SES) usually starts the operation of an assembly shop on site. The SES, sponsored by the German economy and the Federal Ministry for Co-operation (BMZ), is a federation of retired experts who travel to different operational areas in development countries. The senior experts who start up SOLUX assembly shops have been trained in the work shops in Dresden and are familiar with all production steps.

Travel expenses are usually paid by the SES. The client in the developing country only has to pay for accommodation and meals (as well as an allowance). The commissioning usually takes about 2-3 weeks with 3-4 employees also being trained.

4. Tools

The **toolkit for the lamp assembly** consists of

- several devices and appliances for pre-fabrication and assembly and
- a plug charger as well as a multi-meter for electrical testing.

The following common **standard tools are not supplied**. We assume that they are preexisting or can be acquired in the country:

Should be provided from local partner	
1 pair	Working gloves
1 pcs	snips (210 mm)
1	Drilling machine (electrical)
1	Saw (fine) for wood
1 Set	Felt pens (4 pieces, permanent, different colours)
1	hammer (500 gr)
1	combination pliers
1	Tape measure 2 m (folding rule)
1 bottle	alcohol for cleaning
1	kitchen-scissors
1 Pack	sandpaper, granulation 100 (10 pieces)
2	knife (also called carpet knife)
2 Pack	blades for carpet knife(10 stripes = 70 knife elements)
1 set	screwdriver 3,5-8 mm (5 pieces)
1	vice (width 100 mm, opening 120 mm)
1	Ruler of steel (min. 500 mm)