

## SELECTION AND USE OF QUALITY SOLAR MODULES

The sustainability of a solar powered water system (SPWS) and the reliability of water services is put to jeopardy when solar panels installed are of low quality. Markets are flooded with damaged or fake modules, many of unverifiable quality.

To ensure long term functionality, selection of solar panels is a critical part of the implementation.

Listed here are tips that implementers can take to avoid poor quality purchases or use of damaged panels. These are to be used in combination for enhanced selection.

### Quality Related:

-Manufacturing certification to IEC/EN 61215, IEC/EN 61730 (for crystalline modules), IEC/EN 61646 (for thin-film modules) and UL 1703 is mandatory for any module to be considered a quality module. Modules that meet these standards provide a better assurance of prolonged life and power output guarantee.

-Presence of manufacturing certification numbers marked on either the module nameplate or the module datasheet. These numbers ensure authenticity of the manufacturing certifications that come with the panel<sup>1</sup>. Without these numbers, the quality and legitimacy are more difficult to verify.



### Authenticity Related:

-Genuine solar panels come typically in branded packages.

-Junction boxes and stickers in the back of each genuine panels are perfectly straight, while that is not always the case with counterfeit ones.

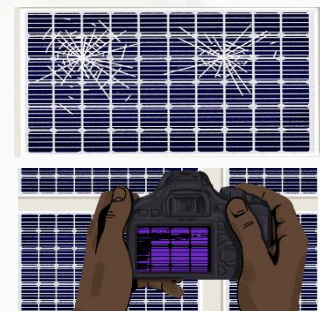
-Front covers of quality panels are made of crystal, while those of counterfeit ones are often made of plastic. Barcode stickers inside these glass covers are a sign of authenticity, as faking them is difficult.



### Damage Related:

-Panels can be damaged while in storage, transport, or installation, with damaged packaging an indication of potentially damaged panels. This can lead to twisted or broken aluminum frames, cracked glass or other obvious physical signs of decline. Panels with cells of different colors should also be rejected.

-Specialized tools like portable I-V tracers and Thermography and Electro-Luminescent cameras can be used to detect hidden or internal damage.



### Measures to be taken by Implementers:

1. **APPOINT ONE PERSON** who can monitor quality, authenticity and damage.
2. **DEFINE** your quality requirements and clearly inform bidders that you will validate authenticity, quality and performance.
3. **ASK SUPPLIERS** to provide module certification identification numbers corresponding to the quoted certifications.
4. **CONTACT MANUFACTURERS** or check certificate databases to ensure barcodes correspond to their modules.
5. **DON'T PAY IN FULL** until the quality is verified.

See our video on this topic at [www.youtube.com/watch?v=b0PXiU72asY](http://www.youtube.com/watch?v=b0PXiU72asY)

Further information and resources: [www.thesolarhub.org](http://www.thesolarhub.org)

<sup>1</sup> See more at Chapter 10, [www.thesolarhub.org/resources/solar-pumping-for-water-supply-harnessing-the-power-of-the-sun/](http://www.thesolarhub.org/resources/solar-pumping-for-water-supply-harnessing-the-power-of-the-sun/)