



**PROSOL**  
**Financing Solar Water Heating**  
**in Tunisia**

**United Nations Environment Programme, DTIE**

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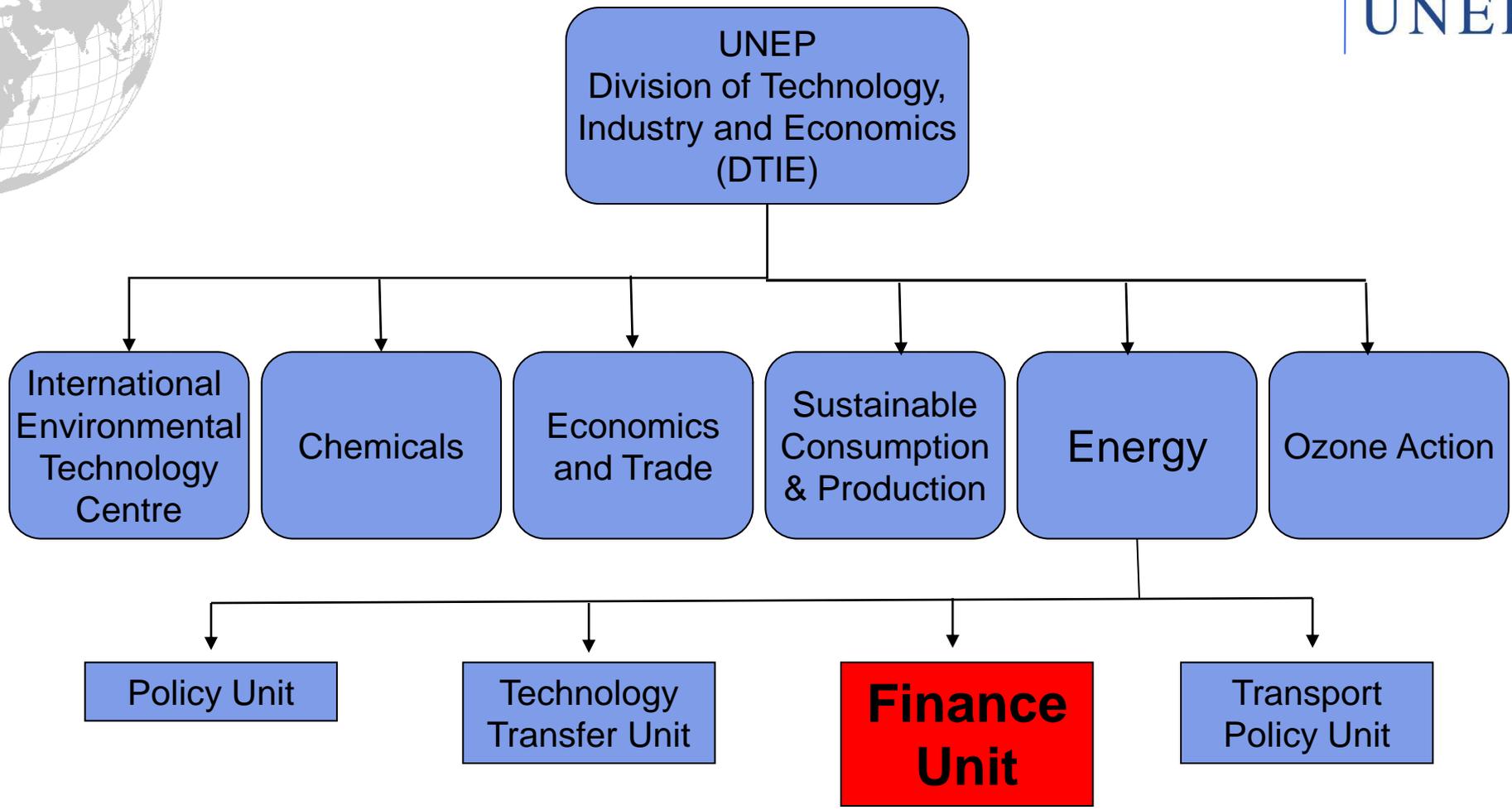
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# UNEP-DTIE and the Energy Branch



**Mission:** To help **overcome market barriers** and **increase investment flows** to renewable energy and energy efficiency technologies

**Within our End-User Finance programme, UNEP helps to:**



- **Overcome market barriers**
- **Increase investment flows to renewable energy and energy efficiency technologies**



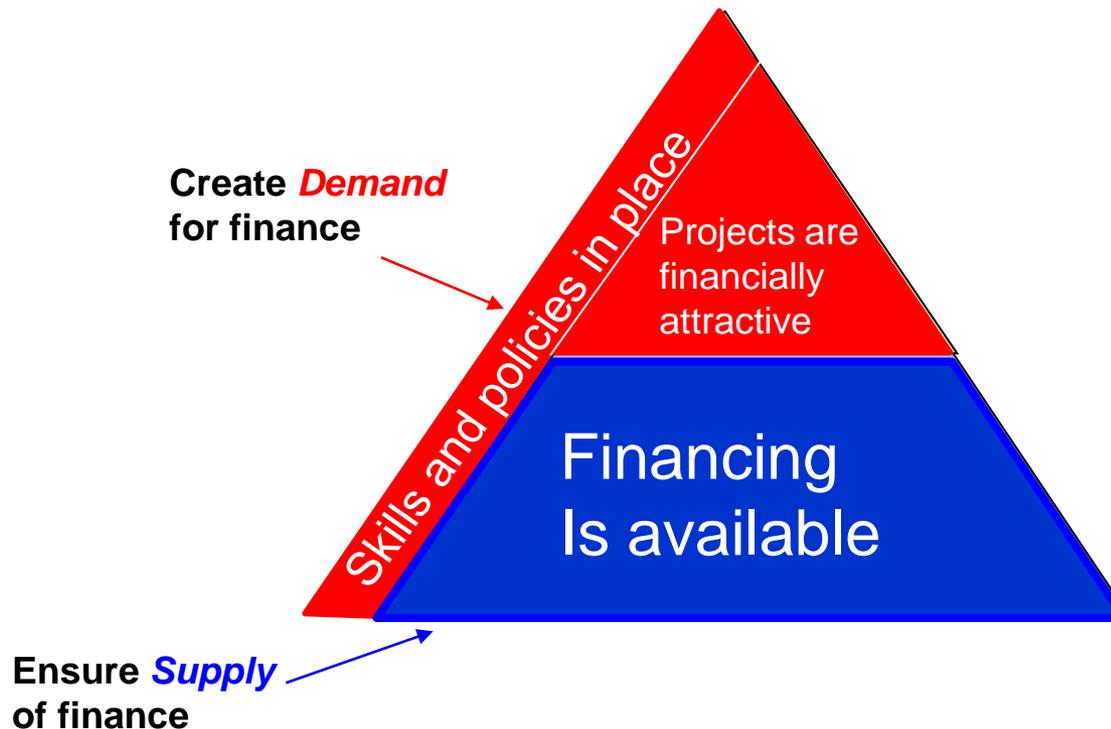


# Characteristics of UNEP's Strategy

- **Not being a financial institution** allows UNEP to work in non-competitive ways with leaders in the banking community
  
- Turning the **finance sector** into an ally promoting clean energy by:
  - Supporting **decision making**, both amongst governments and financiers,
  
  - Implementing financial support mechanisms used **to reduce the front-end barriers**
  
  - Using several approaches for softening loan financing: Interest rate reductions (Tunisia), green mortgages (Mexico), ect.

# What's Needed to mobilize Scale up?

## ✓ Rebalancing Supply and Demand



**Message :** Most emphasis to date has been on ensuring a supply of finance. Need to also foster the demand for this finance.

# Applications of UNEP's strategy :



MINISTERO DELL'AMBIENTE  
E DELLA TUTELA DEL TERRITORIO E DEL MARE

## *PROSOL: A Success Story in Tunisia*

Supported by the Italian Ministry of  
Environment, Lands and Sea





# Initial Situation

*Why isn't solar energy used for water heating in sunny Tunisia?*

## Favourable conditions

- ✓ High solar resource
- ✓ Strong institutions
- ✓ National priority:  
Energy conservation

## Challenges

- ✗ Capital intensive, no financing
- ✗ Current option (LPG) heavily subsidised

## UNEP Strategy

1. Help banks to begin financing Solar Water Heaters
2. Address perverse subsidy

## Goal

- ✓ Develop sustainable SWH market; displace LPG use.
- ✓ Improve energy security and reduce CO<sub>2</sub>





# Main features of the Programme

## 1. Loans financed through local banks

- repayments made through electricity bills
- interest rates initially softened
- interest subsidy phased out after 18 months

## 2. Subsidy equalized between SWH and LPG

- underwritten for a trial period by Italy
  - 20% of system cost = 75\$/m<sup>2</sup> = **existing gas subsidy**
- After successful trial made permanent
  - Change in Tunisian legislation



# Repayment through Utility Bill

## Buy **CHEAP** and Pay **SLOWLY**

- A loan mechanism over a **5-year term**
- 10% down payment
- Repayment of the loan via the STEG utility bill
- Monthly payment = Energy savings

## A **QUICK** and **SIMPLIFIED** Procedure

- Customer contacts the SWH supplier
- Customer fills out the application form at the **SWH supplier office**, presents his latest STEG bill and ID
- The installation is **immediate** once the application form and engagement form are signed



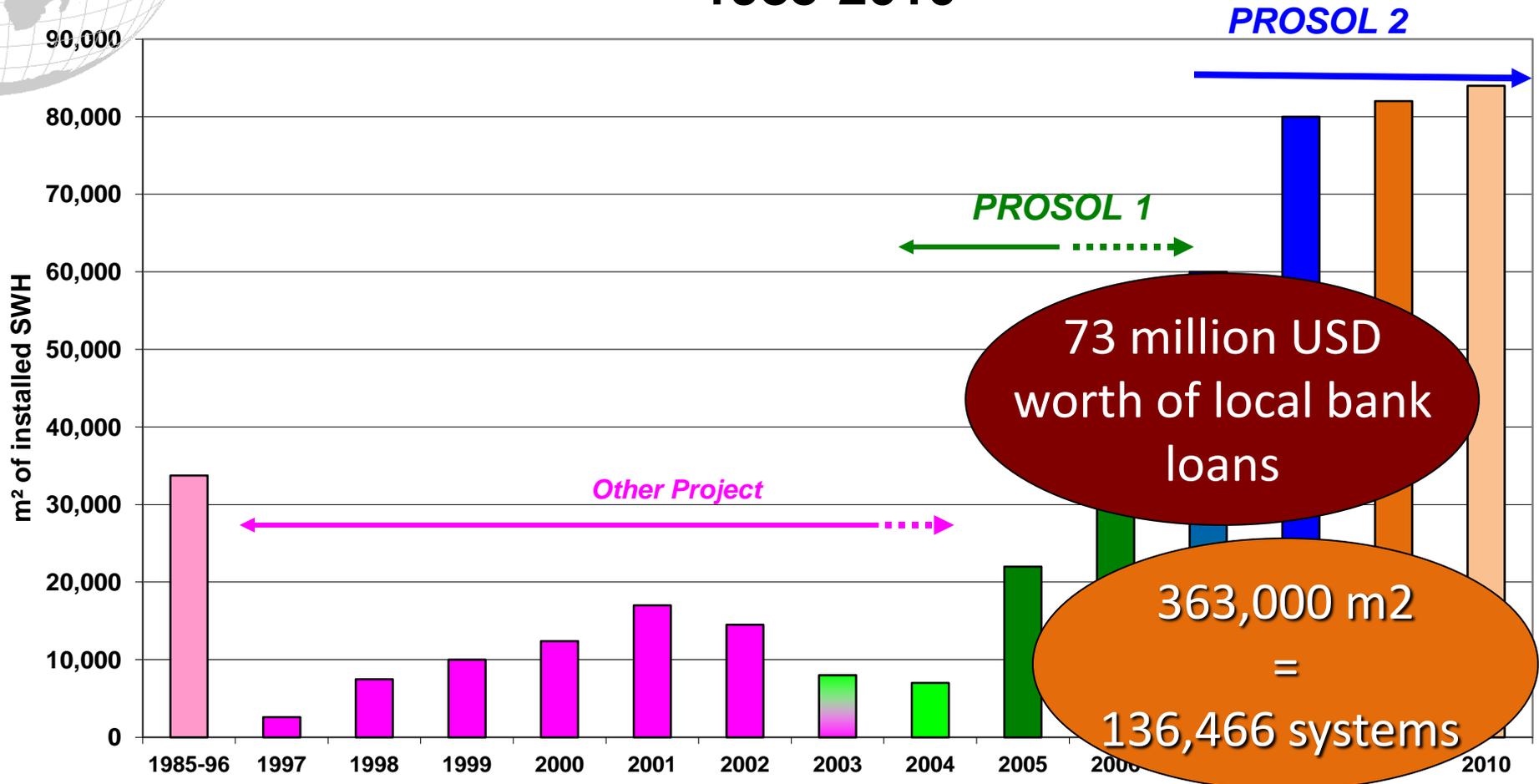
# Discounted Interest Rates

- **Initial** average bank consumer loans: 12 – 13%
- With STEG's involvement, banks provide loans to the end users by lowering the interest rates by 5-6 points because the **risk of nonpayment** is low
- UNEP further softened interest rates down to **0%**, full benefit passed on to the customer.

# PROSOL Results



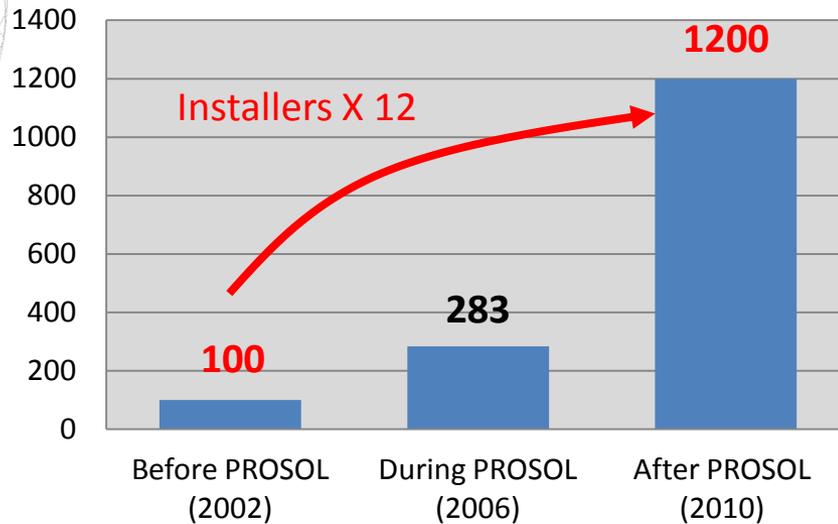
## Solar Water Heaters Market Growth in Tunisia 1985-2010



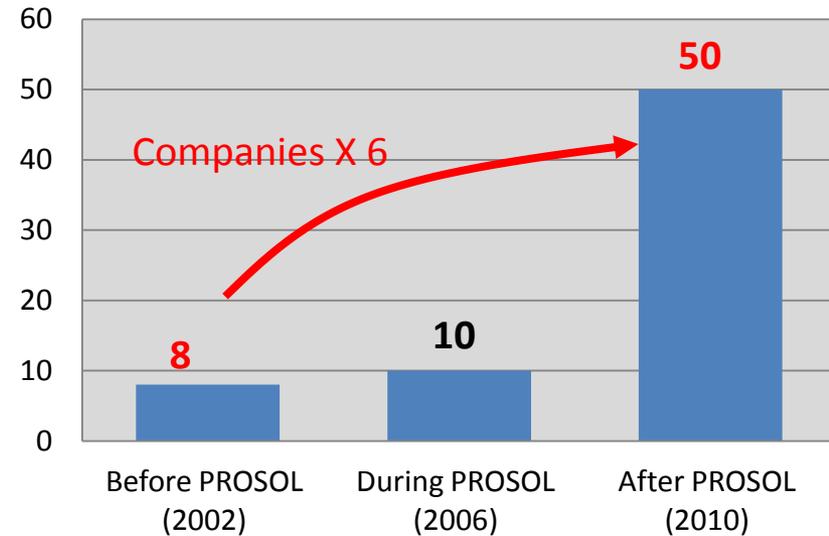
# PROSOL Results: Social & Economic Impacts



## Number of qualified installers



## Number of sale companies



- ✓ More than **3500** direct jobs were created
- ✓ A turnover of 176 million DTN ( 120 million \$) with an increase of 28% per year

# Applications of UNEP's strategy :

## ➤ PROSOL Carbon mitigation:



Programmatic  
CDM

### PROSOL Results

- **363,000m<sup>2</sup> SWH (136,466 installations)**
- **Equivalent to 705,600 tonnes of CO<sub>2</sub>**
  - **Worth \$7 million at market prices**
    - **NB: programme cost \$2.5 million**

### GOVERNMENT Target 2016

- **1,000,000m<sup>2</sup> (~376,000 installations)**
  - **1.95 million tonnes of CO<sub>2</sub> - market value \$19.4 million**
- **CDM documentation prepared and project approved**
  - **project has been marketed to governments – ORBEO purchased the green certificates through an international tender.**

# Key success factors in PROSOL

- Involvement of the Energy State Utility (STEG) offered security to banks
- A comprehensive communication & awareness raising campaign
- UNEP interest rate subsidy
- UNFCCC approved project and Orbeo purchased the CERSs





# Applications of UNEP's strategy :

## ➤ Lessons learnt /1

- Technologies available; **market uptake slow**
- But markets scale up quickly once banks start to lend.
- **Banks need help** to get started - Necessity for **Capacity Building**
  - **Assessing** technologies,
  - **Marketing** new loans,
  - **Kick-starting** demand (financial incentives).
- Capacity Building and Communication are mandatory for the development of the solar water heating market

# Applications of UNEP's strategy :

## ➤ Lessons learnt /2

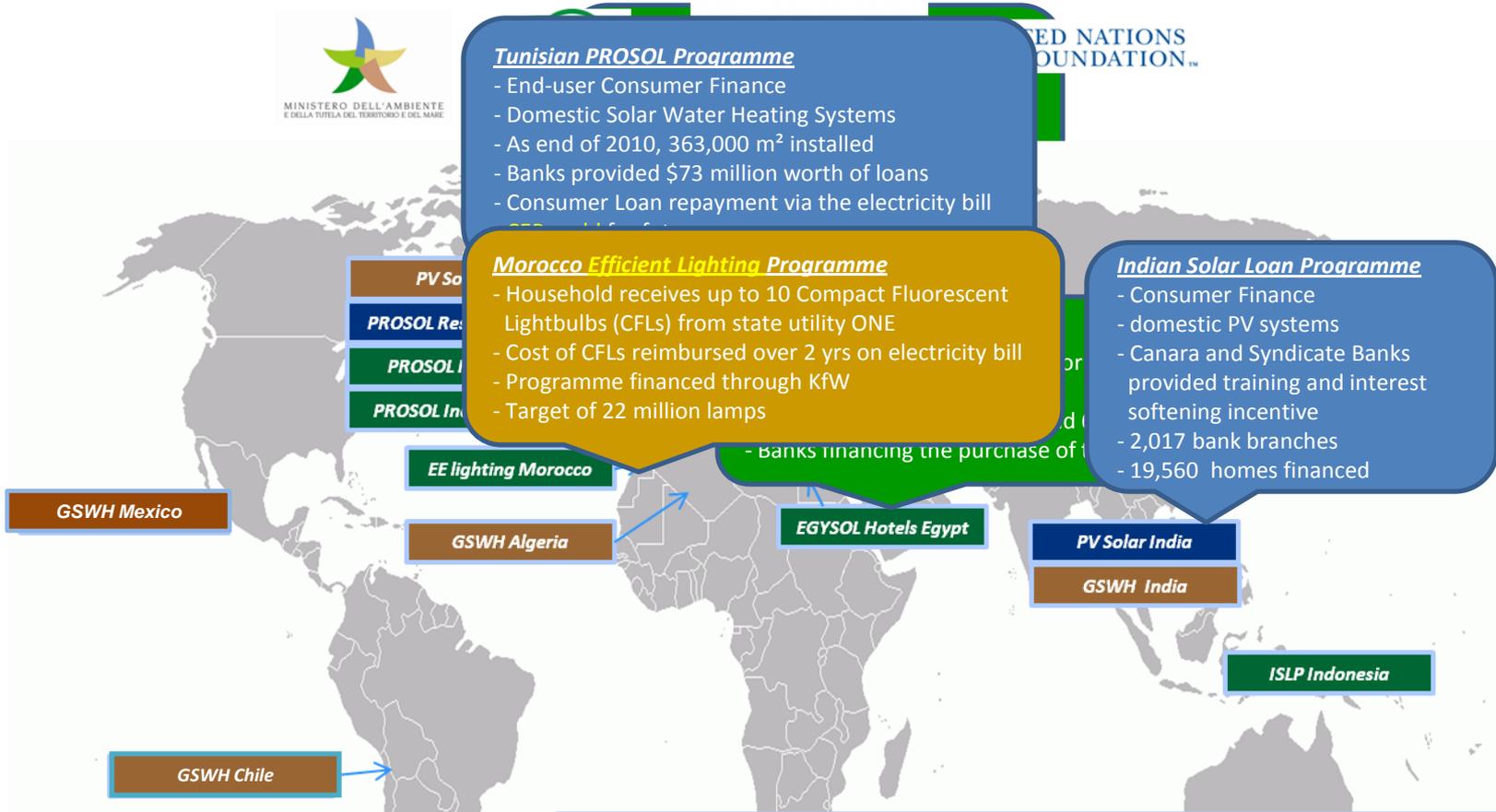
- PROSOL a **driver for policy change**
  - Lending gives feedback signal that technology is mature.
  - 20% capital cost subsidy for SWH was set by law
  - Decree 4/2006 reaffirmed **VAT exemption** and **reduced custom duties** for SWH
- **PROSOL 2** launched in 2007 – Once UNEP funds finished
  - Entirely developed by **local actors**,
  - Contribution to the creation of a self-sustaining, long-term market for solar water heaters



# End-User Finance Programmes



UNITED NATIONS  
FOUNDATION™



## Key

- SWH: Solar Water Heating Projects
- GSWH: Global Solar Water Heating Programme
- PROSOL: Programme Solaire - Solar Water Heating Programme in Tunisia
- EE Lighting: Energy Efficiency Lighting Programme in Morocco
- EGYSOL: Egyptian Solar Water Heating Programme
- PV Solar Programme India
- PV Solar project; Photovoltaic solar project in Tunisia
- FACET: Financing Access to Clean Energy Technologies (3 countries Asia)
- ISLP: Indonesian Solar Loan Programme
- GVC: Green Village Credit China

## Implementation Stage

- Completed
- Operating
- In Development





# Thank You

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