



# PROSOL

## Financing Solar Water Heating in Tunisia

**United Nations Environment Programme, DTIE**

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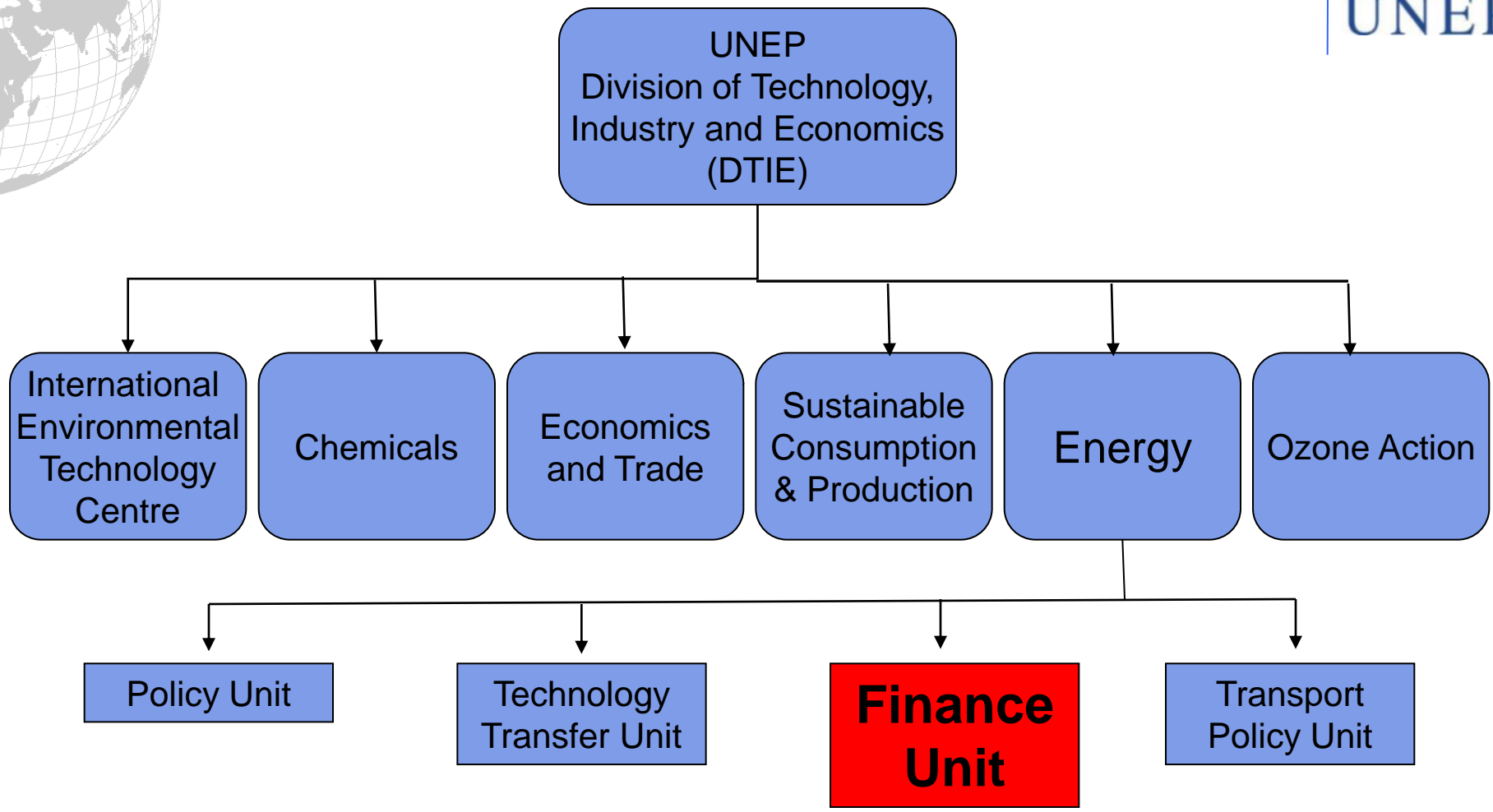
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# UNEP-DTIE and the Energy Branch



**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

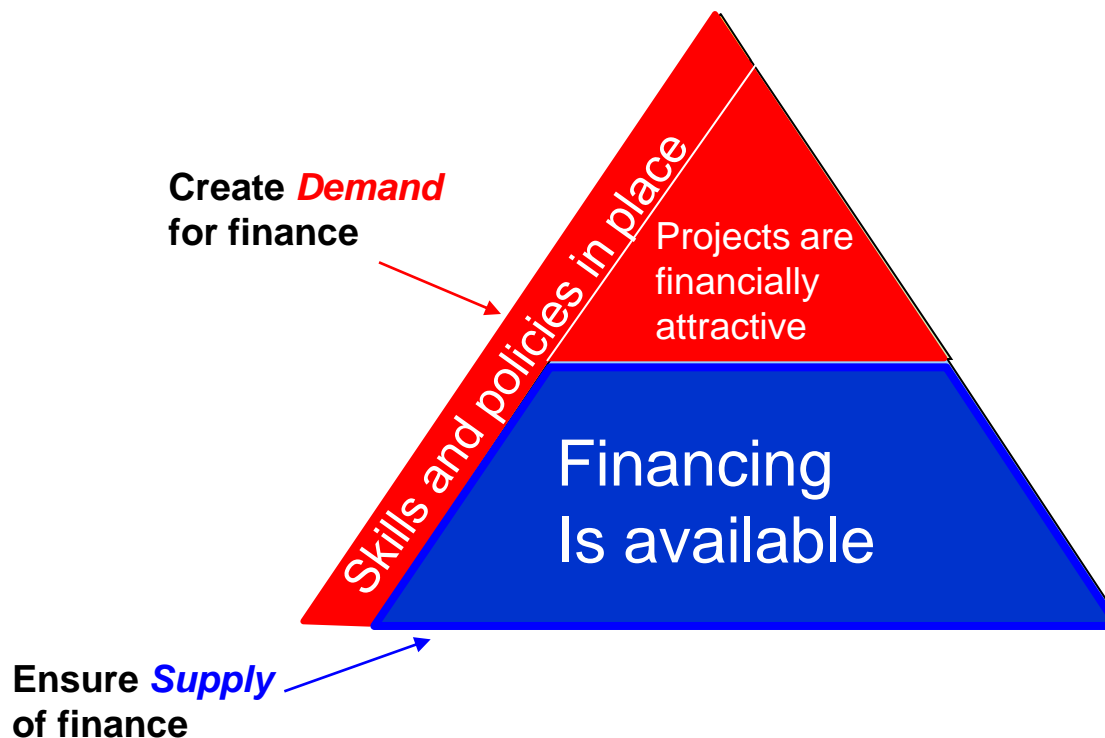


# Characteristics of UNEP's Strategy

- **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

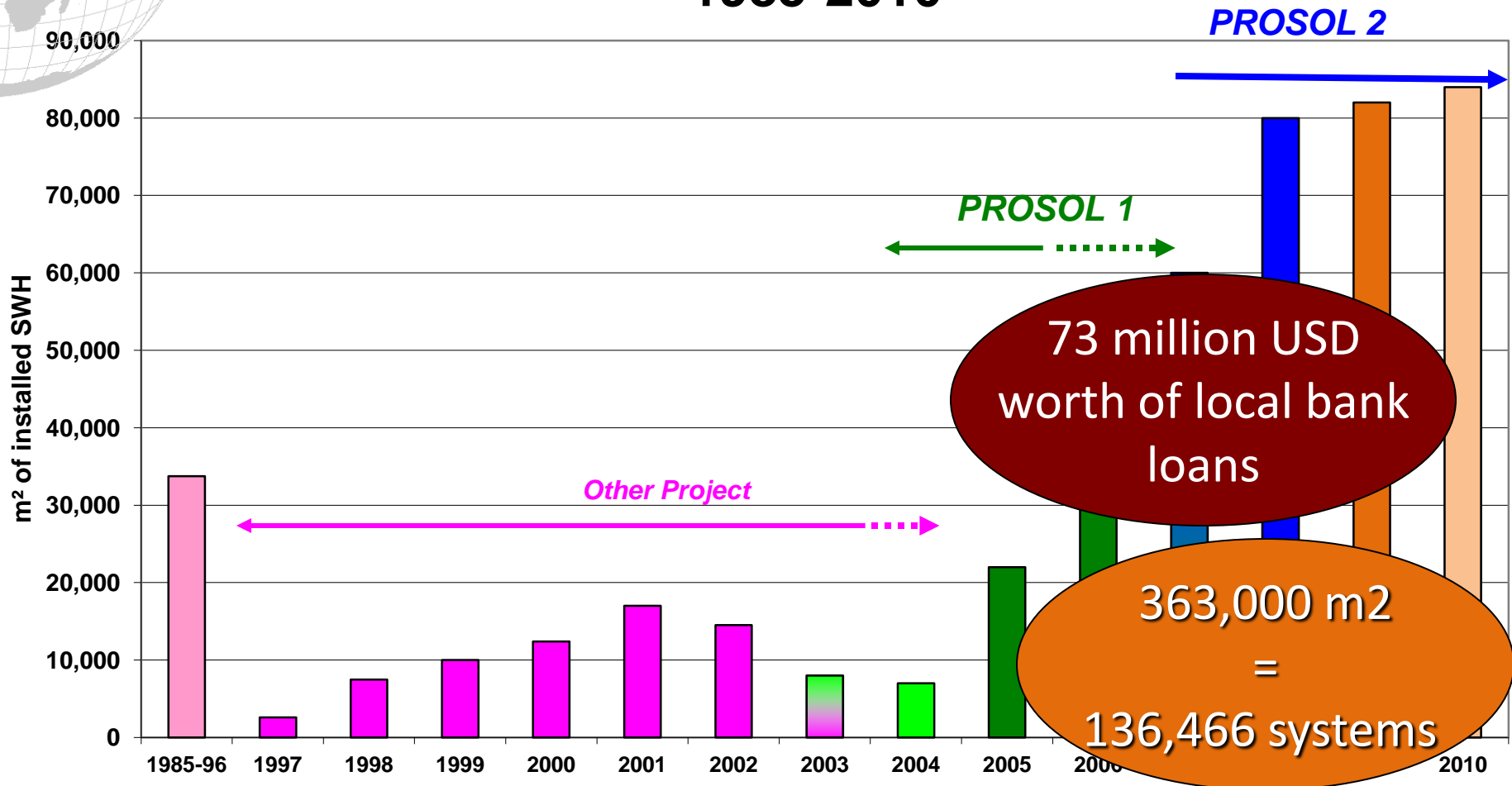
- **Initial** average bank consumer loans: 12 – 13%
- With STEG's involvement, banks provide loans to the end users by lowering the interest rates by 5-6 points because the **risk of nonpayment** is low
- UNEP further softened interest rates down to **0%**, full benefit passed on to the customer.



# PROSOL Results

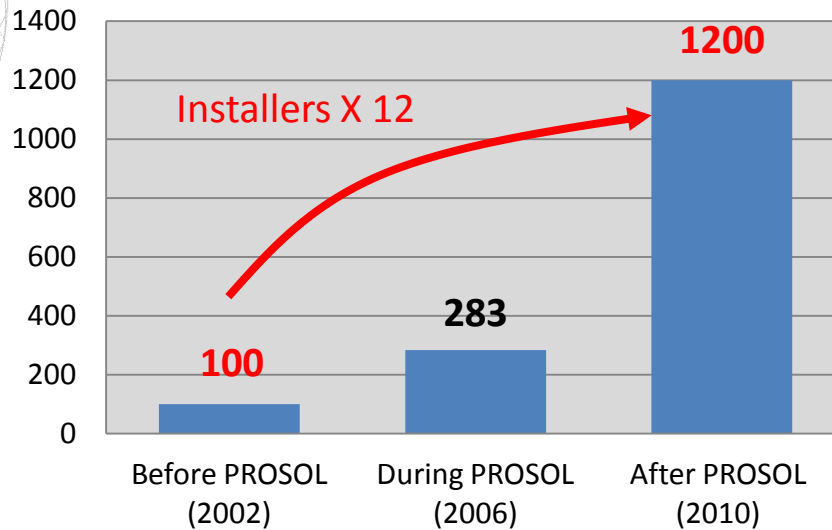


## Solar Water Heaters Market Growth in Tunisia 1985-2010

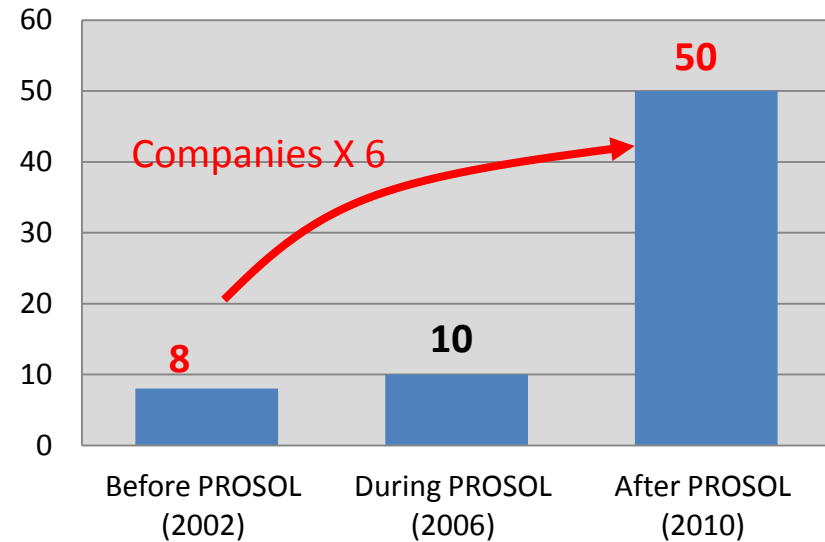


# PROSOL Results: Social & Economic Impacts

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:

### 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

## Tunisian PROSOL Programme

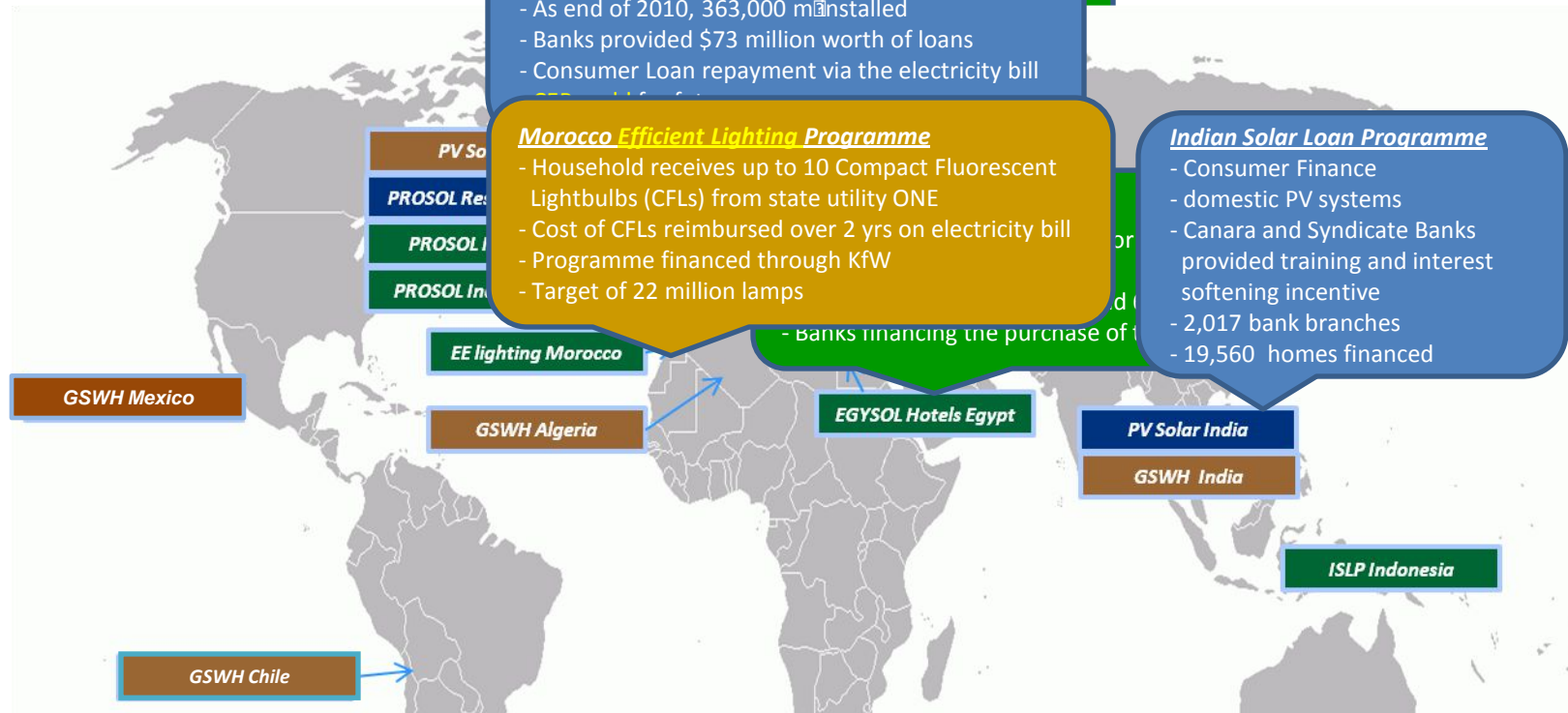
- End-user Consumer Finance
- Domestic Solar Water Heating Systems
- As end of 2010, 363,000 m<sup>2</sup> installed
- Banks provided \$73 million worth of loans
- Consumer Loan repayment via the electricity bill

## Morocco Efficient Lighting Programme

- Household receives up to 10 Compact Fluorescent Lightbulbs (CFLs) from state utility ONE
- Cost of CFLs reimbursed over 2 yrs on electricity bill
- Programme financed through KfW
- Target of 22 million lamps

## Indian Solar Loan Programme

- Consumer Finance
- domestic PV systems
- Canara and Syndicate Banks provided training and interest softening incentive
- 2,017 bank branches
- 19,560 homes financed



## 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 Loan 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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