

SOLAR WATER HEATING PROGRAMME IN MONTENEGRO

**An Alternative Way for Mitigation of
Climate Change**

Energy Efficiency Conference,
Budva, April 2010



United Nations Environment Programme, DTIE

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Introduction



- **Initiative led by the Italian Ministry of Environment, Land and Sea (IMELS)**
- **BALREP Balkan Renewable Energy Programme**
- **UNEP DTIE (Division on Technology, Industry and Economics) Branch**
- **Feasibility study is completed**

Background analysis - Montenegro

Favourable conditions

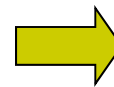
- ✓ Solar irradiation levels among the highest in Europe
- ✓ Important imports of energy
- ✓ Rising fuel prices
- ✓ Skilled manpower in Montenegro
- ✓ Integration into a regional project

Challenges

- ✗ High solar thermal systems prices
- ✗ Lack of local manufacturers
- ✗ Need for awareness raising
- ✗ High interest rates

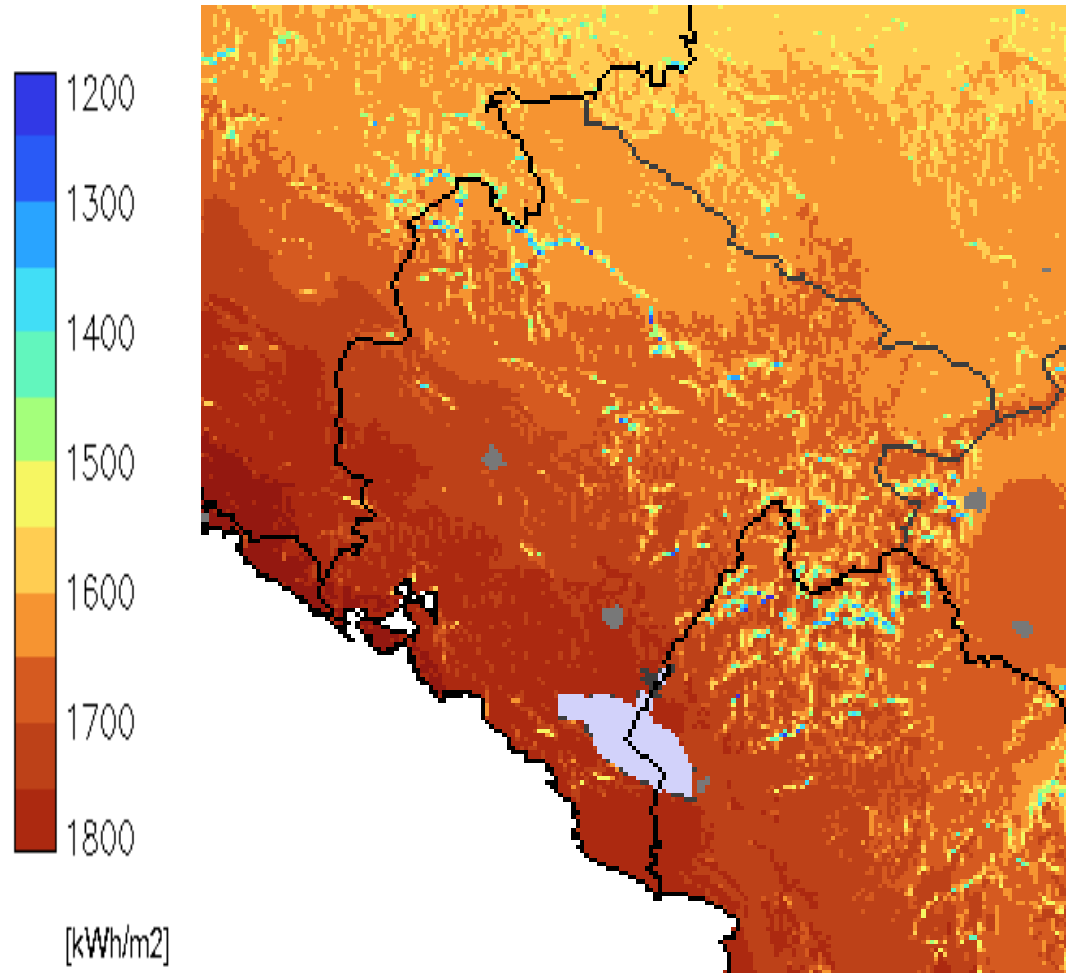
● Key issues:

- Develop a self-sustaining market
- Need to engage the financial sector



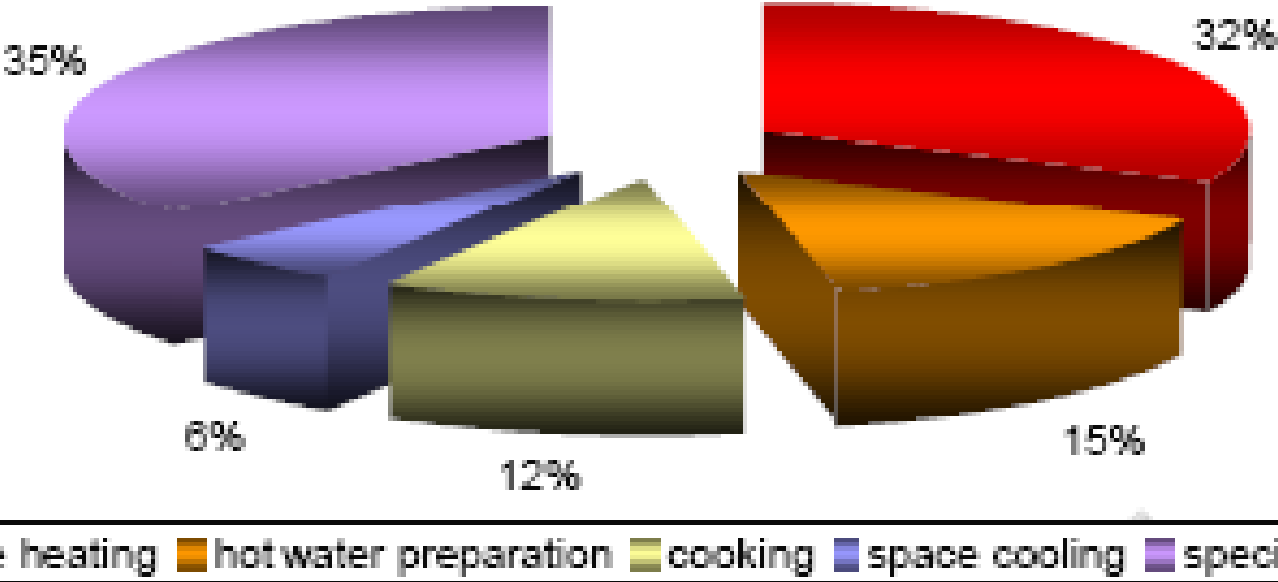
Multi-stakeholder approach

Background analysis - Irradiation



Yearly sum of global irradiation – European Commission, Joint Research Center

Background analysis - Consumption



Electricity consumption of households (Energy Development Strategy)

Households Market Survey



750 interviewees – face to face

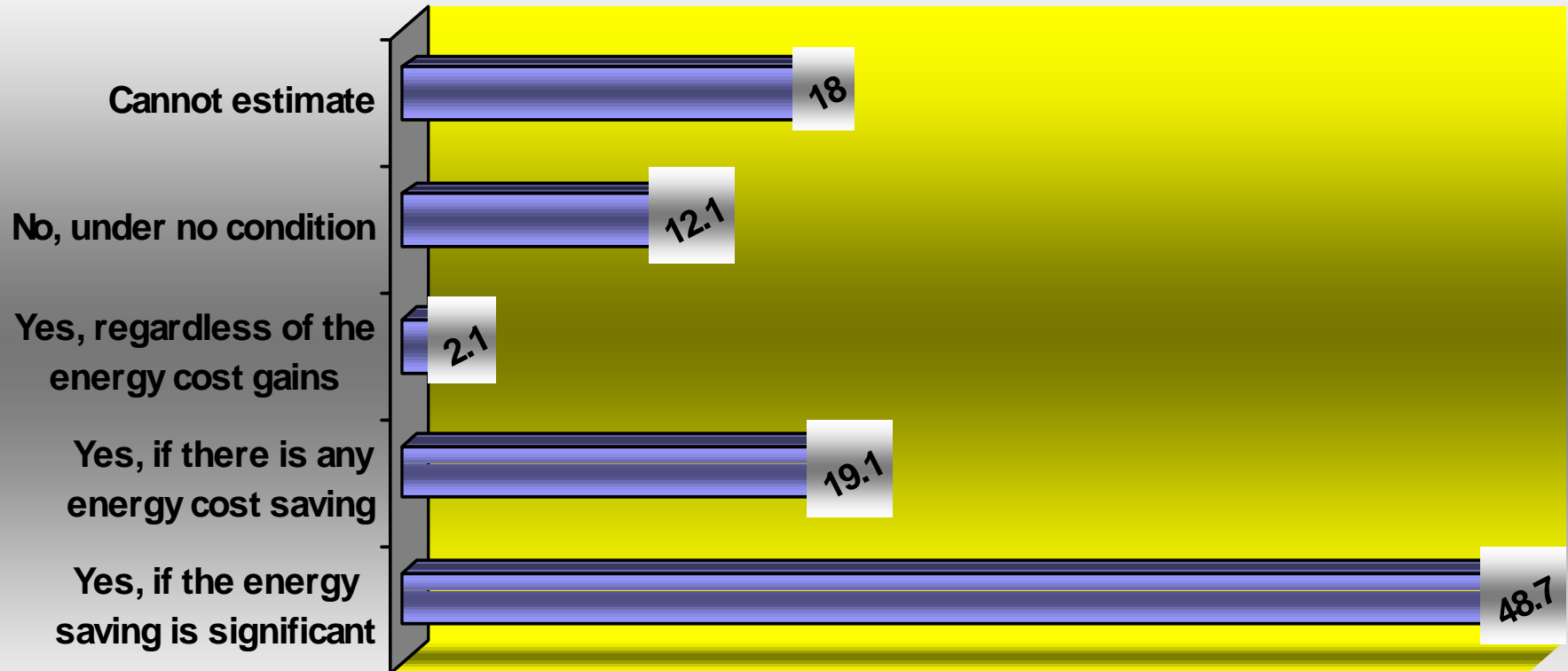
DEFACTO Consultancy

7 towns (Podgorica + coastline)

Questionnaire = 18 + Leaflet

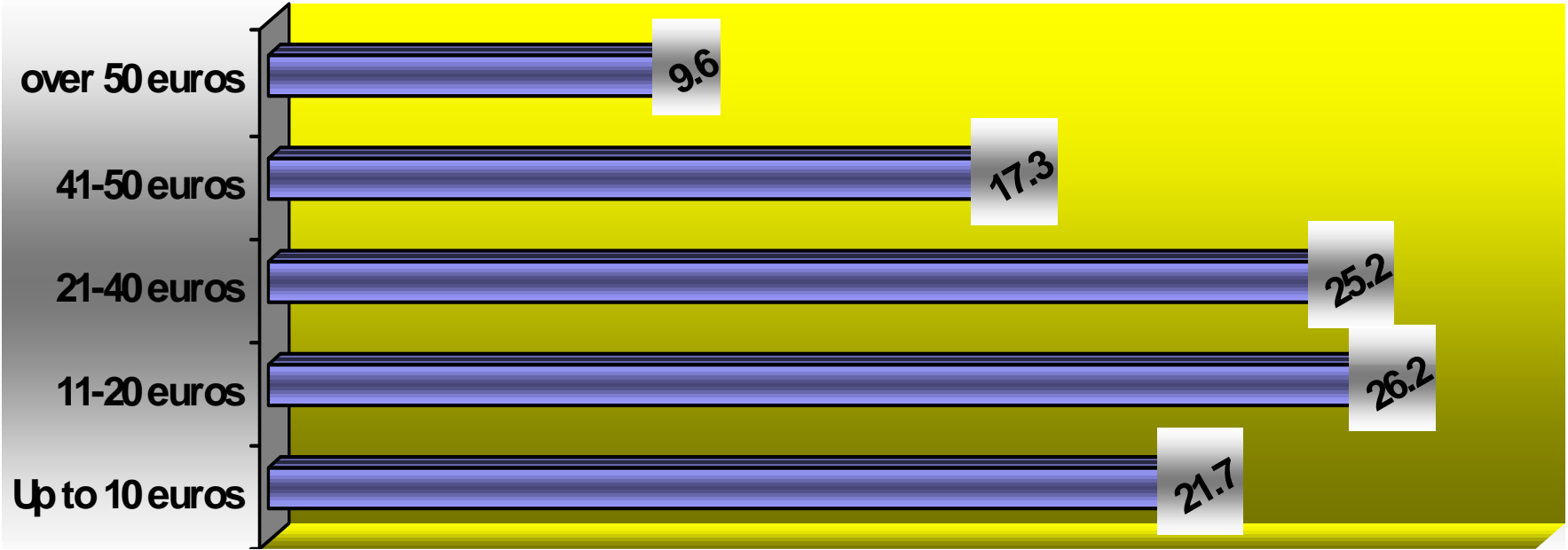
Key message: There is a potential market for the SWH systems in Montenegro as regards households

Households Market Survey – results



Interest in SWH system installation

Households Market Survey – results



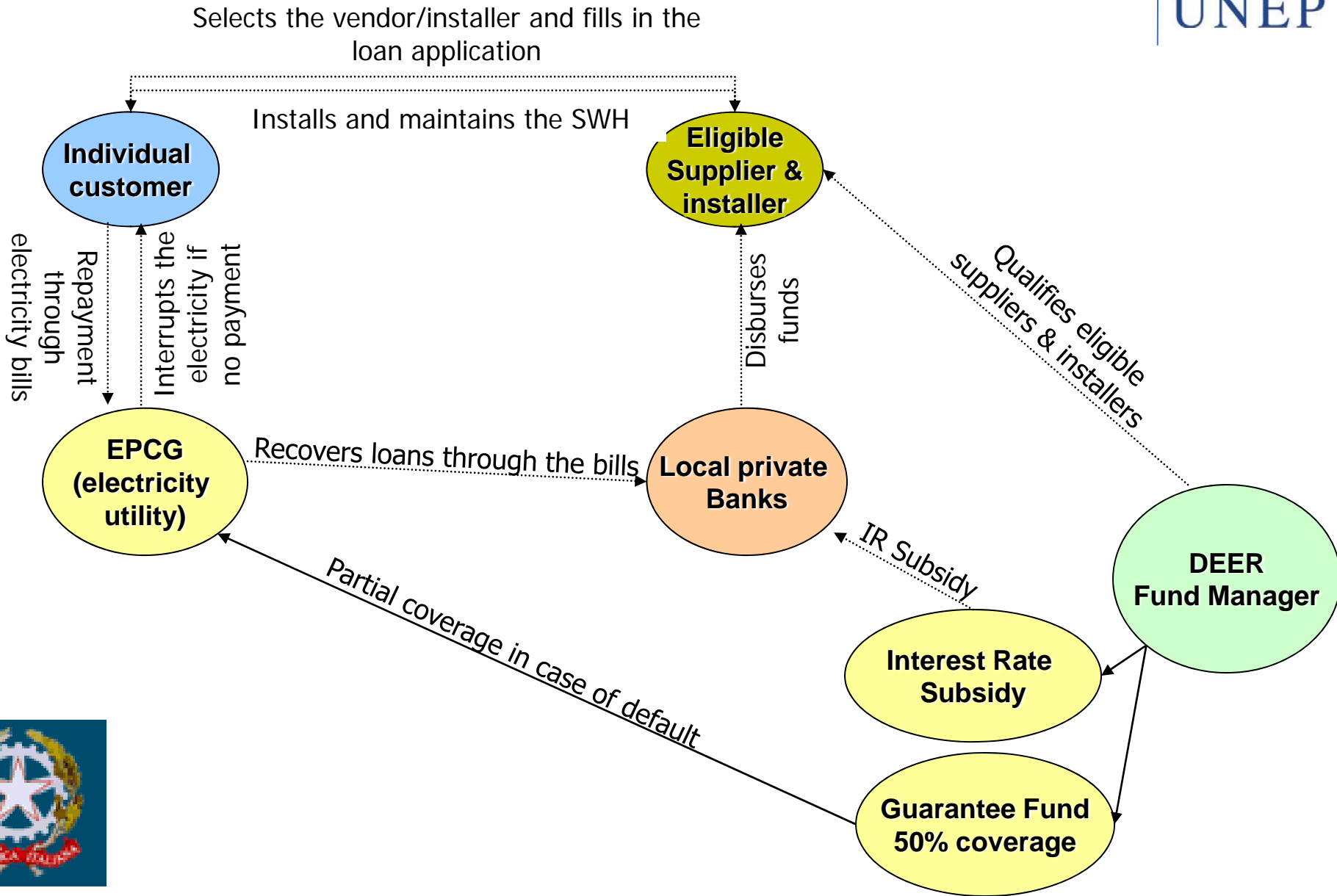
Willingness to pay the instalment of the loan



Agreed Stakeholders to participate:

- 1. Department for Energy Efficiency and Renewables (DEER):** project executing partner
- 2. Local banks:** NLB Montenegrobanka, Societe Generale – Podgoricka banka: only private banks in Montenegro
- 3. SWH distributing companies:** ETG, Home Systems, Octopus, Skill Inzenjering, etc.
- 4. EPCG Supply Unit:** state-owned electricity supplier
- 5. Regulatory Energy Agency:** responsible for electricity tariffs

Proposed financial scheme



Financial support mechanism



- **Success in Tunisia**
 - Similar projects in Macedonia, Albania and 11 countries all over the world
- **A loan mechanism** over 5-7 yrs repayments
 - Monthly repayments through utility bills
- **Discounted interest rates** on the loans
 - Interest rate negotiable, covered by Initial fund from the Italian Ministry of Environment through UNEP
 - Interest rates lowered from 12% to 6% due to state utility involvement

Benefits to Consumers

ASSUMPTIONS: 300 liters systems and 5m² at 1700 Euro at 2% interest rate

	<i>Over 5 years</i>	<i>Over 7 years</i>
<i>Loan Monthly Repayment</i>	Euro 29,80 /month	Euro 21.70 /month

	<i>Cost of electricity 0.11 Euro/kWh</i>
<i>Energy Savings**</i>	267 kWh per month 29,37 Euro /month

* The new tariffs of electricity are effective Dec, 2009

** Assuming that 70% of energy needs for heating the water is covered by solar

Implementation Strategy

- ***Financial Support Mechanism Establishment***
 - Consultation with the stakeholders & Manual procedures
- ***Capacity Building Programme***
 - Training for selected financial institutions, participatory state utilities and public institutions, local manufacturers and importers
- ***Comprehensive Awareness Raising Campaign***
 - Develop materials and organize workshops, design national communication plan and marketing campaign, develop awareness raising campaigns
- ***Development of CDM – programmatic regional approach***
 - Assistance from Italian Consultancy firm D'Appolonia
 - Assessment of SWH potential to deliver CERs

Thank you for your attention!

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