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Session III Climate Mitigation and New Technologies

The 20<sup>th</sup> session of the Subsidiary body on Scientific and Technological Advice (SBSTA)

# Contribution of PV systems to Reduction of CO<sub>2</sub>

TAKASHI TOMITA

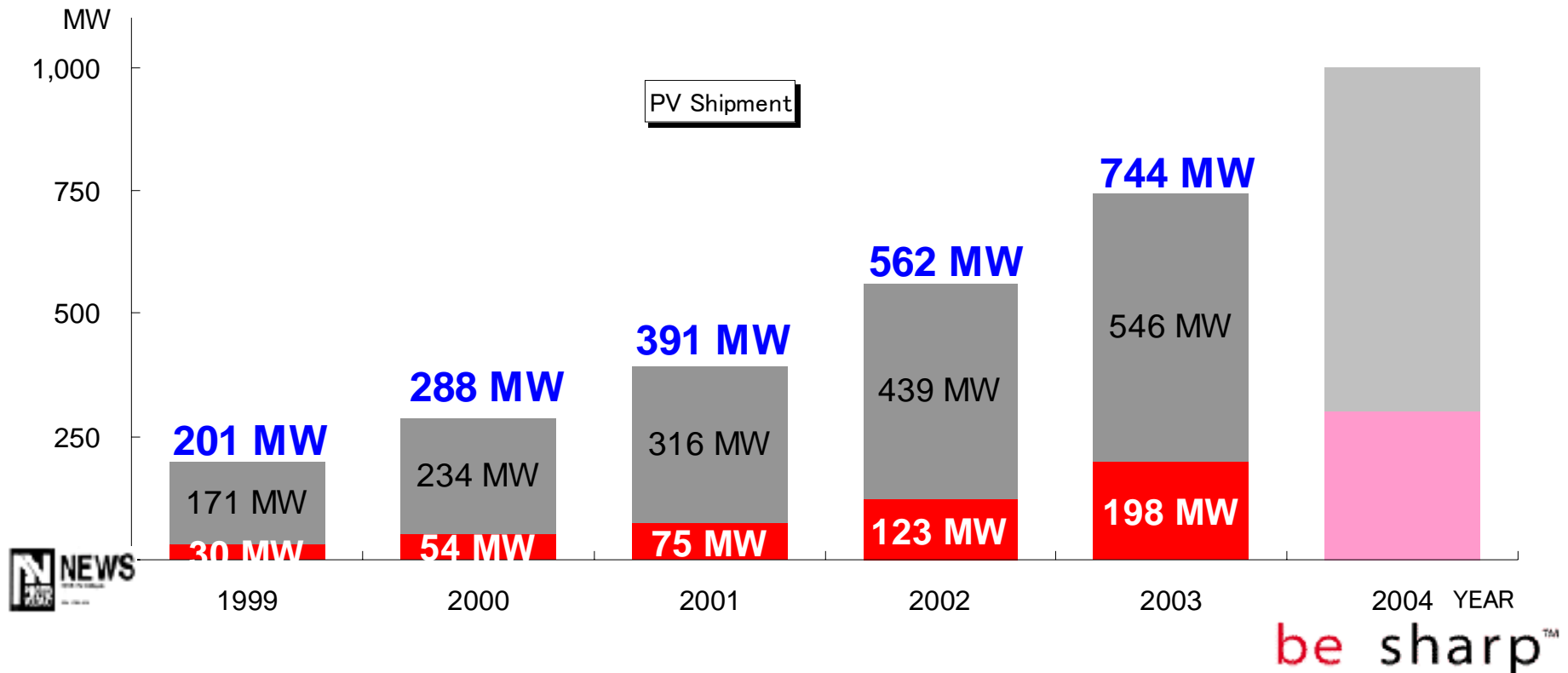
Solar Systems Group

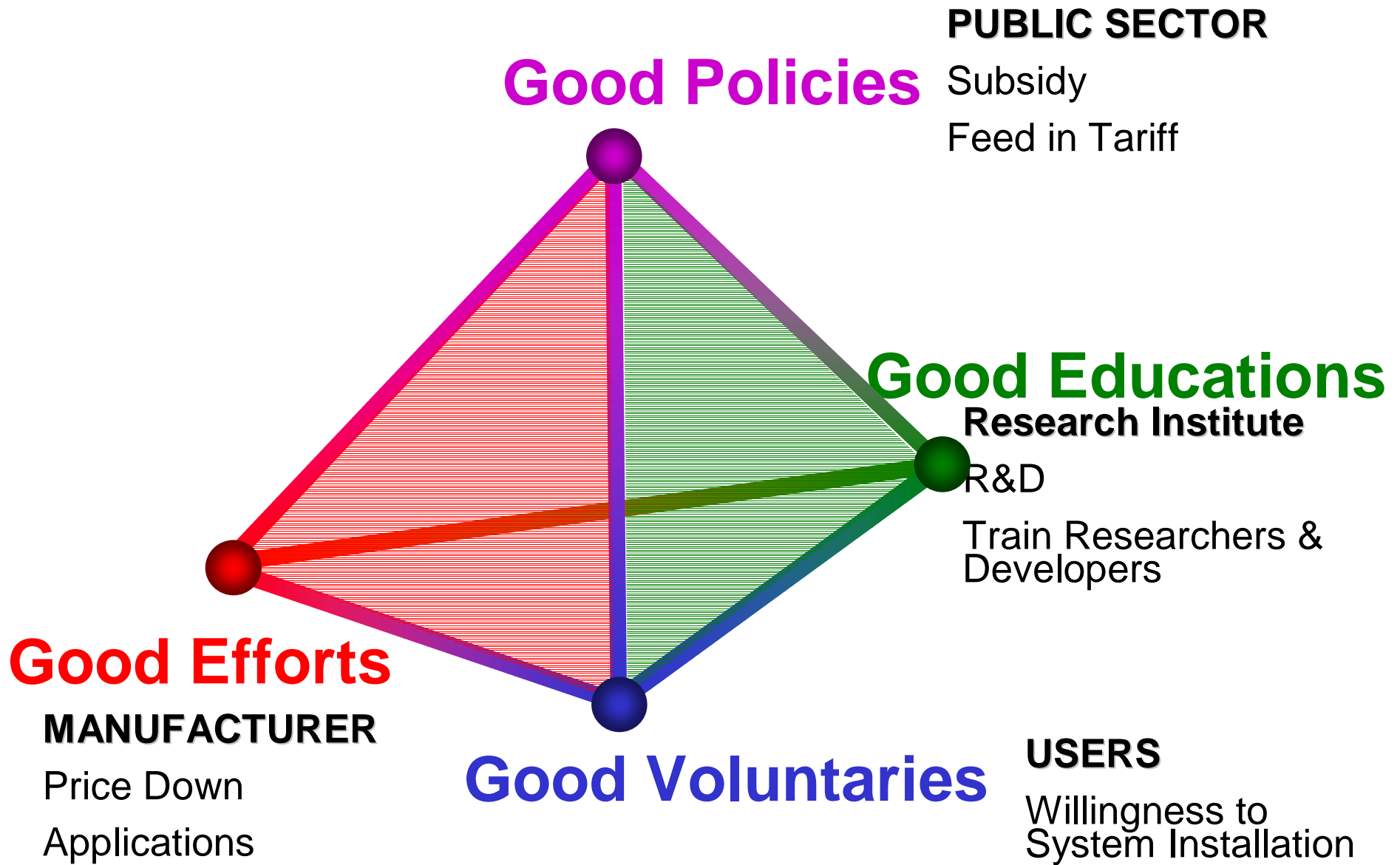
SHARP CORPORATION

**SHARP**

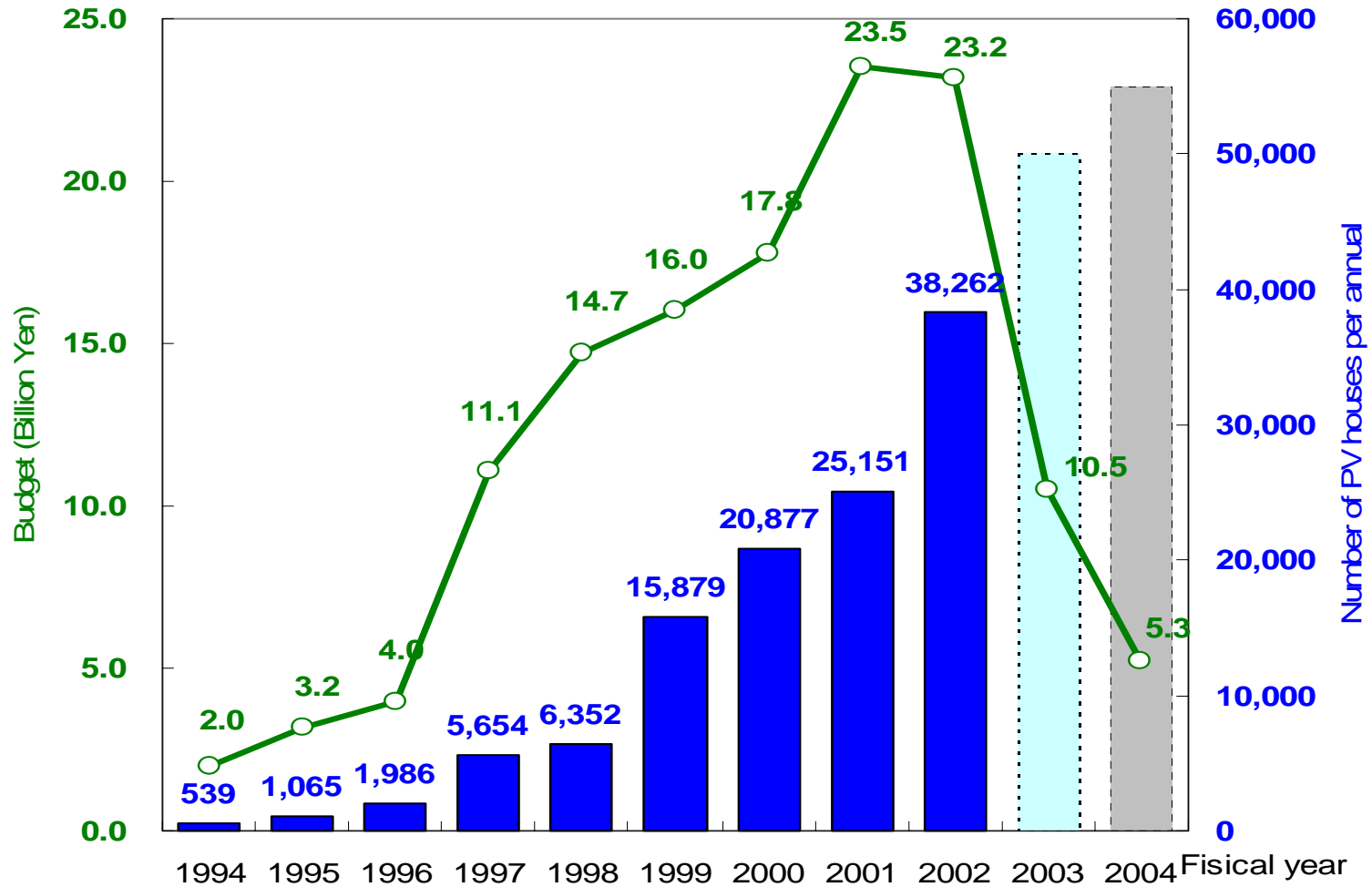
Crystal Clear Company

- Invested Si PV Cell by BELL Lab. in 1958.
- Power by PV is Clean, Huge and Everywhere.
- Rapid Growth of PV Market and Industry since 1994

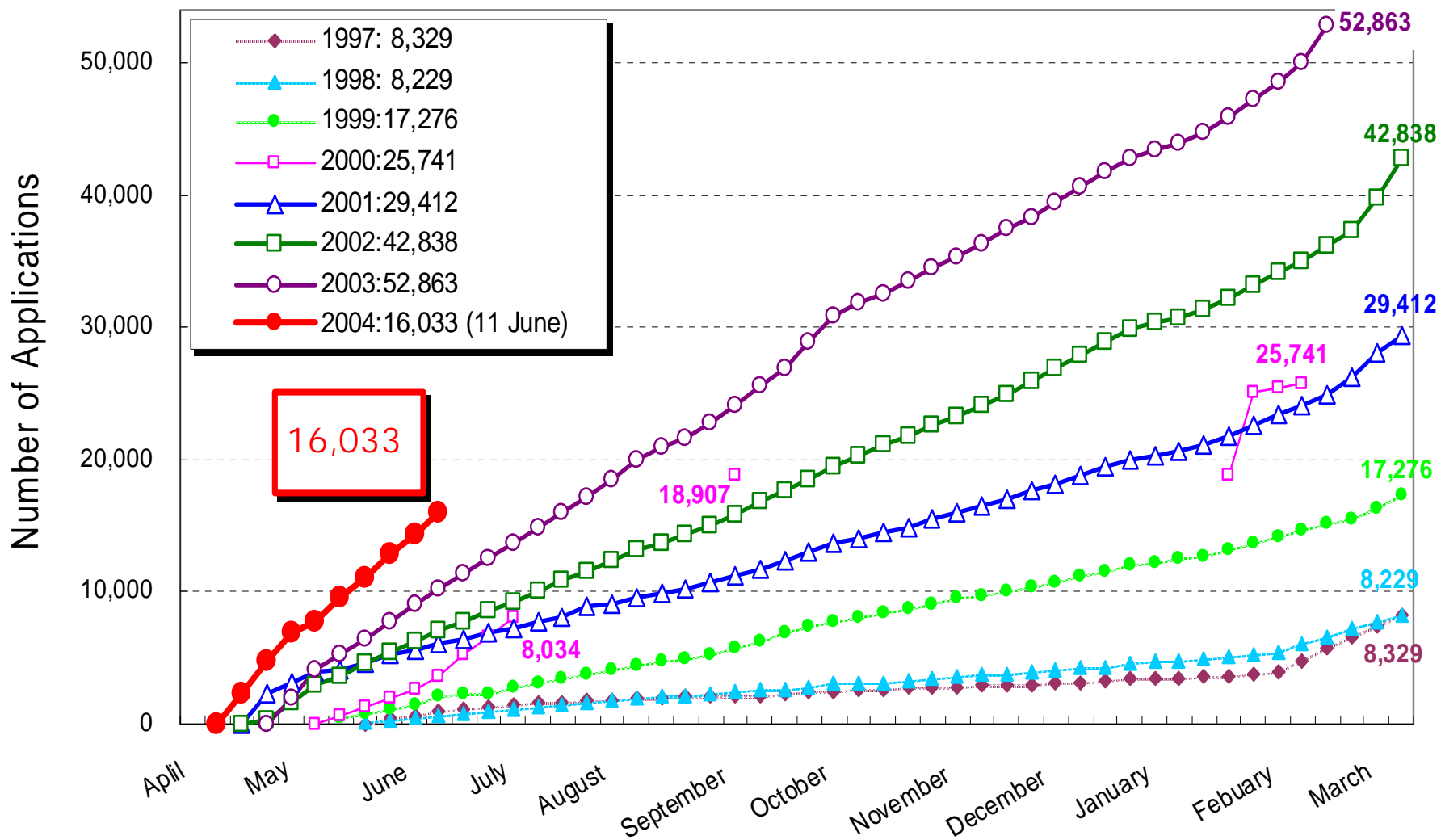




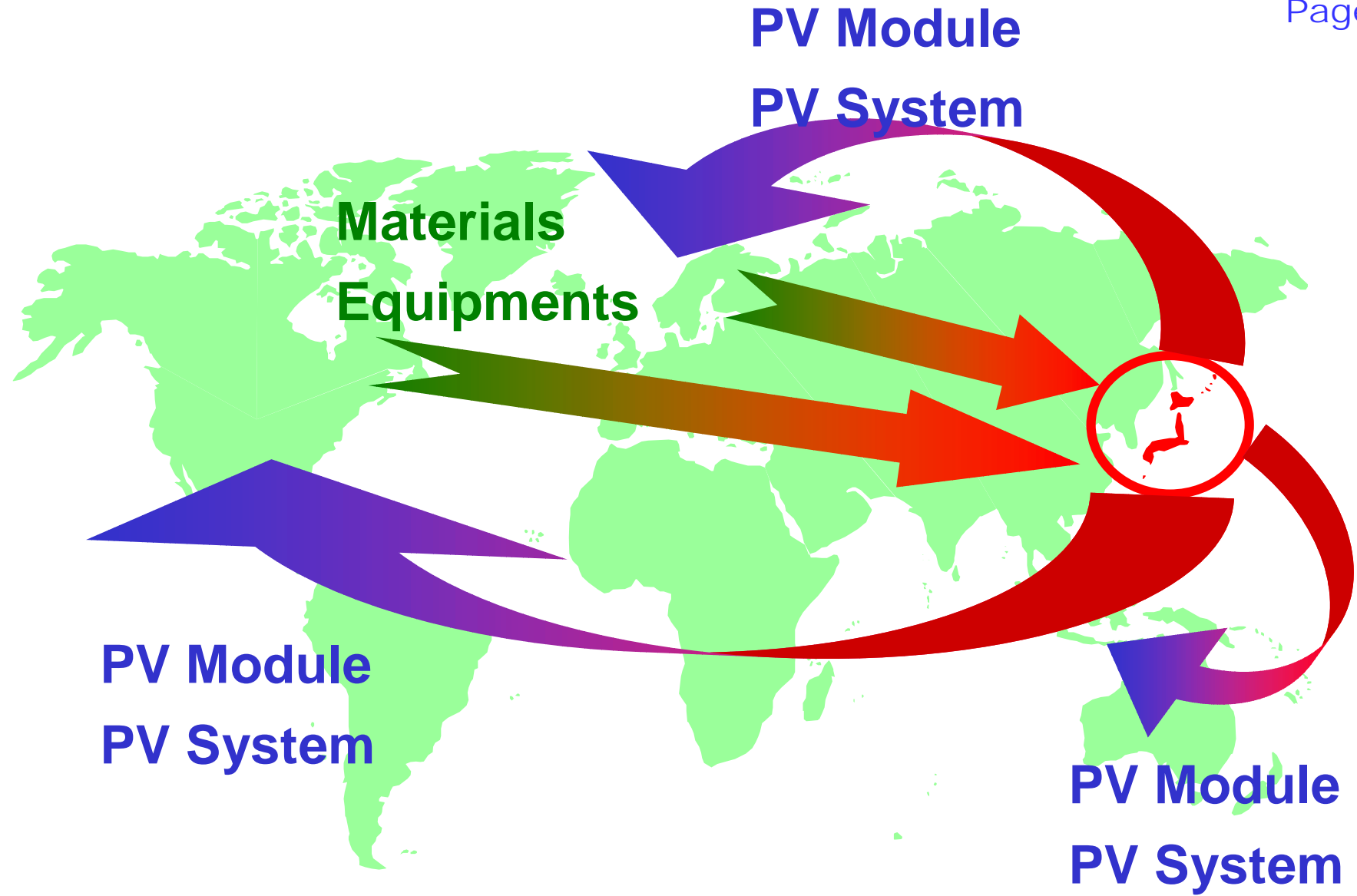
		1992 SS	1993 NSS	1996 NSS	1997 NSS	2000 NSS	2001 Implementation	2003 Implementation	Next 2005		
Solar Cell +Modules	Polycrystalline						Advanced Solar Cell	TF poly-Si TF CIS Super High Efficiency	Next		
	Thin Film										
	Amorphous		Enlargement		Cost Reduction Enlargement						
	CIS				Enlargement						
	Super High Efficiency				Cell						
	High Efficiency Poly-Si				High Efficiency						
	Low energy consumption solar grade Silicon					Industrialization					Industrialization
	Advanced Manufacturing Technology										
PV Systems	Application and BOS		Simple Installation	Building Integrated			Mass Development	Recycle and Reuse			
	Evaluation			BOS				Evaluation			
	Modules							System Design			
	Systems										
	Demonstrative research		Hybrid System	Multi-Hybrid							
Seeds Investigations						Innovation					



Source : New Energy Fundation, SHARP estimated



- Global Supply Chain
- Reduction of CO<sub>2</sub>
- Social Capital
- Electrification of Non-Electric people
- Agriculture with PV Irrigation



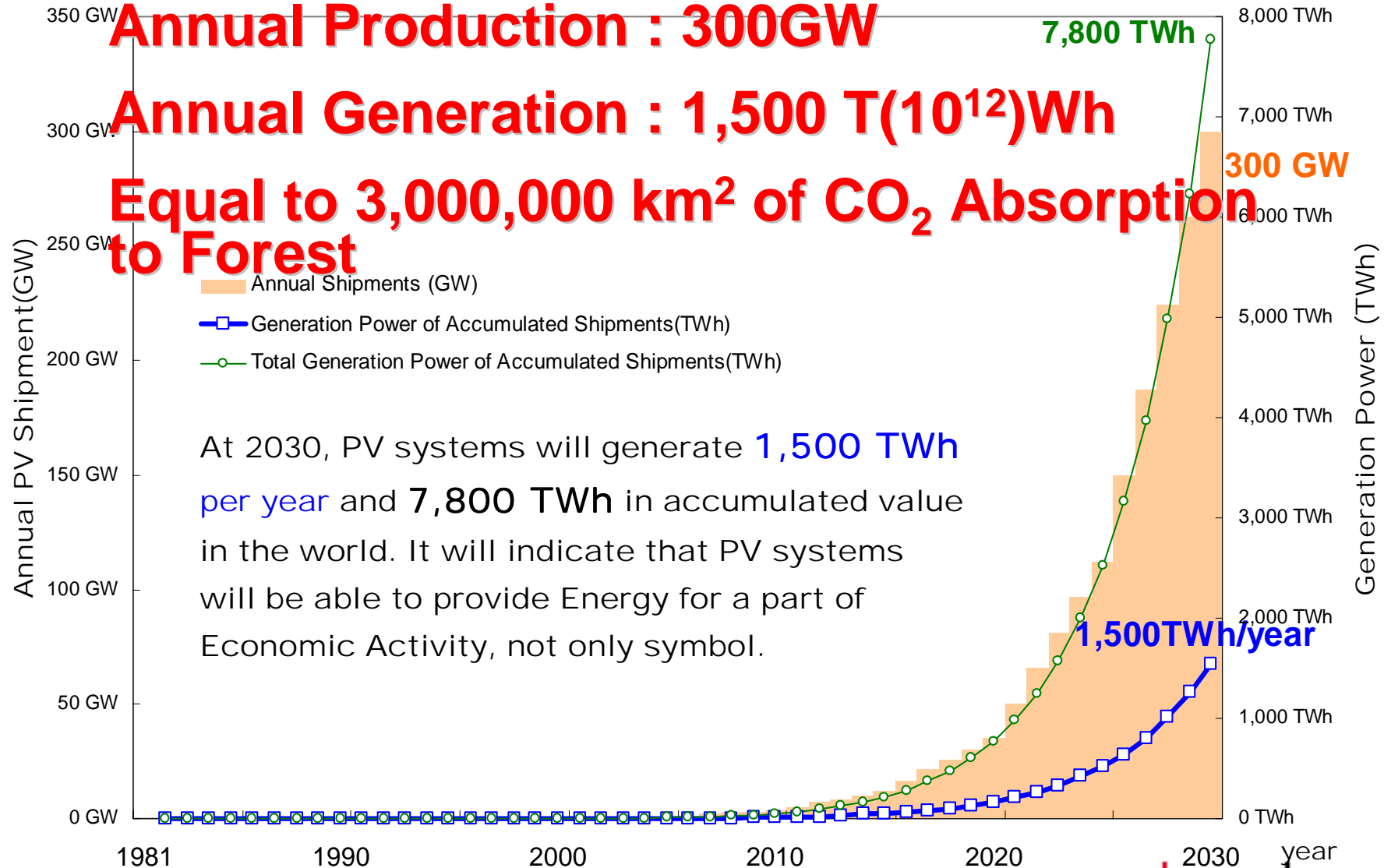


## In 2030

### Annual Production : 300GW

### Annual Generation : 1,500 T(10<sup>12</sup>)Wh

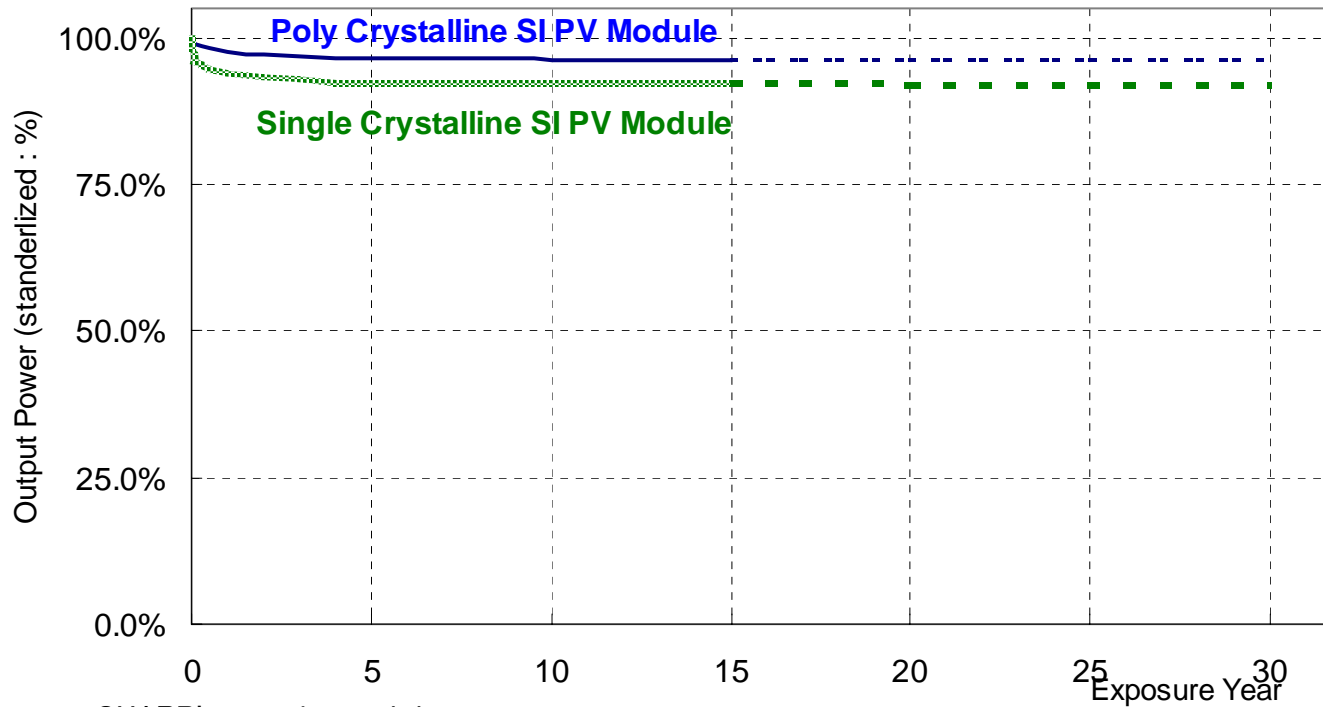
### Equal to 3,000,000 km<sup>2</sup> of CO<sub>2</sub> Absorption to Forest



At 2030, PV systems will generate **1,500 TWh per year** and **7,800 TWh** in accumulated value in the world. It will indicate that PV systems will be able to provide Energy for a part of Economic Activity, not only symbol.

## Estimated Lifetime of PV system

Over One Century following experimental by SHARP



Source : SHARP's experimental data

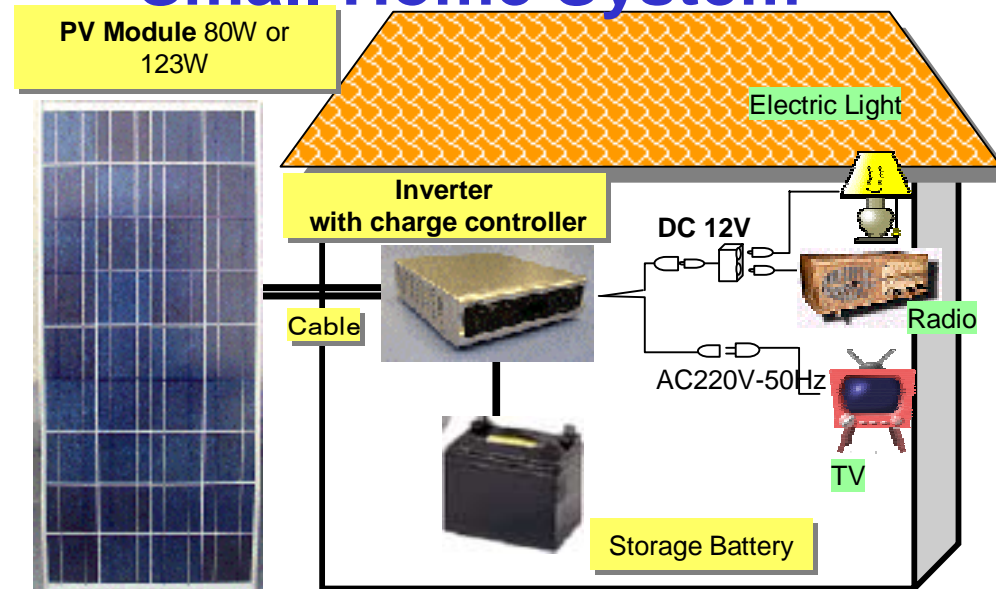
**Electric Energy**

**Acquisition of New Knowledge**

**Development of Newly Related Jobs**

**Stability of International Peace**

## Small Home System





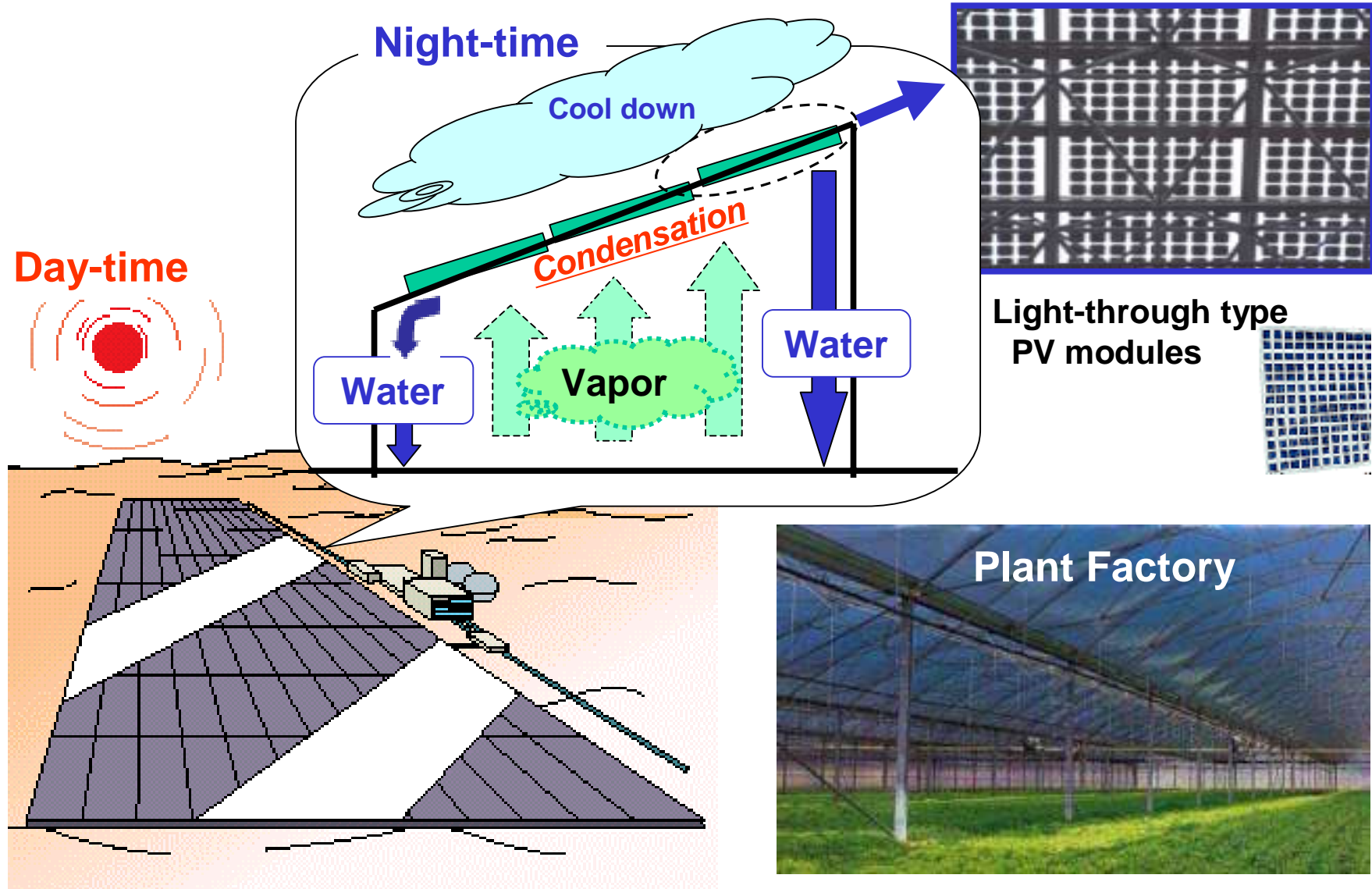
- Power supply to 160-residence and so on
- Hybrid System of PV and Diesel Power generation
- Total Project Cost: approximate US\$ 3 million

**New Energy and Industrial Technology Development Organization**  
**International Joint Experimental Study of Photovoltaic Power Generation System**



## 1MW System

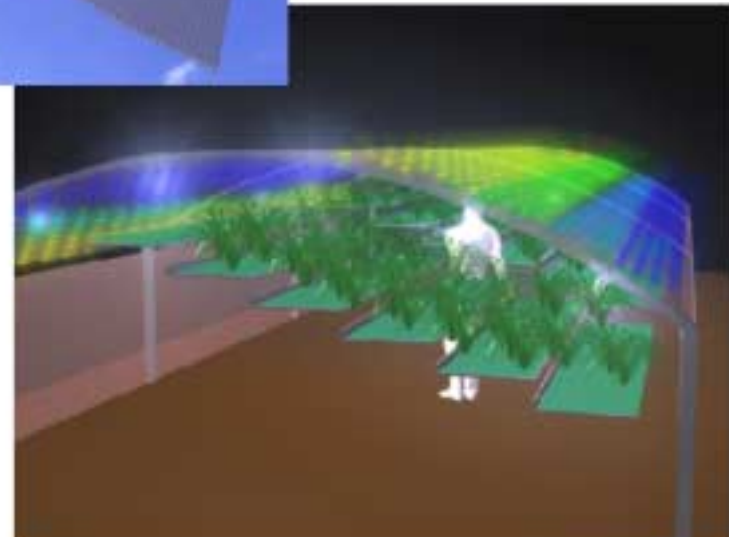
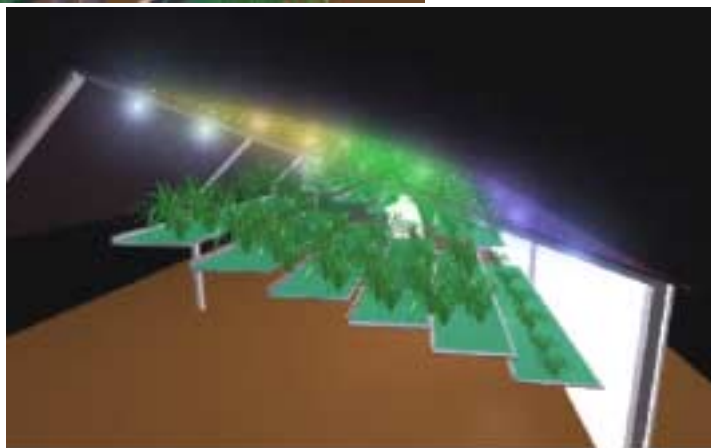
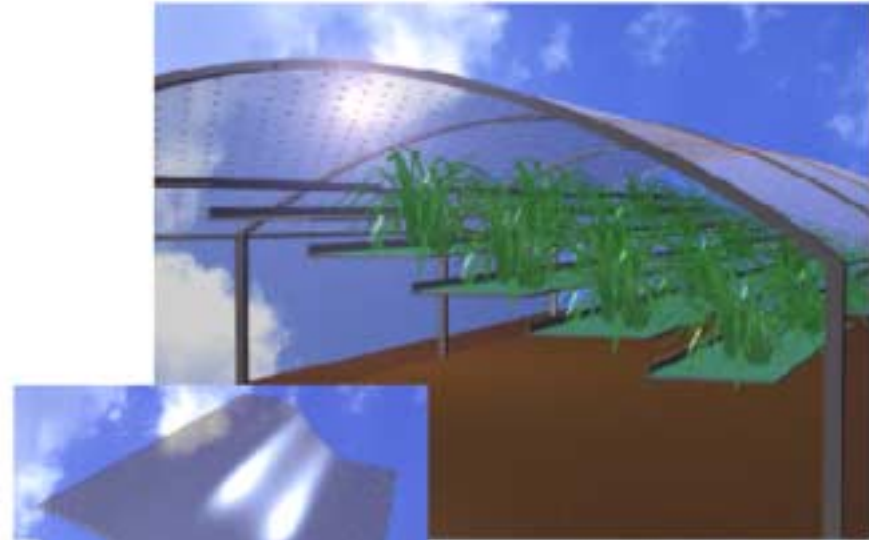
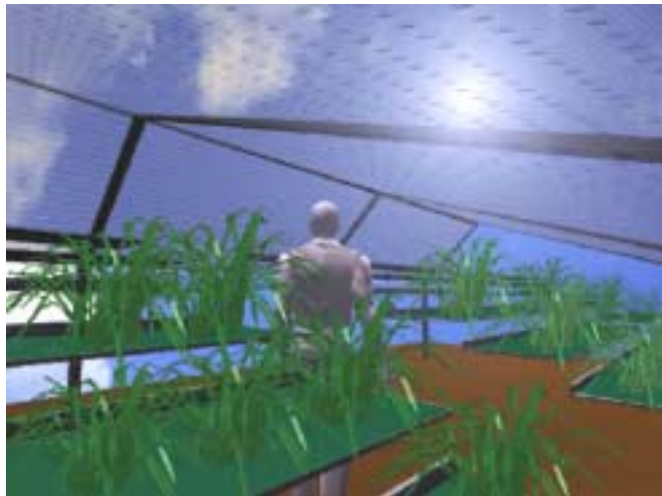
- Location Mindanao
- Date March 2004
- PV Modules supply from SHARP



Controlled environment

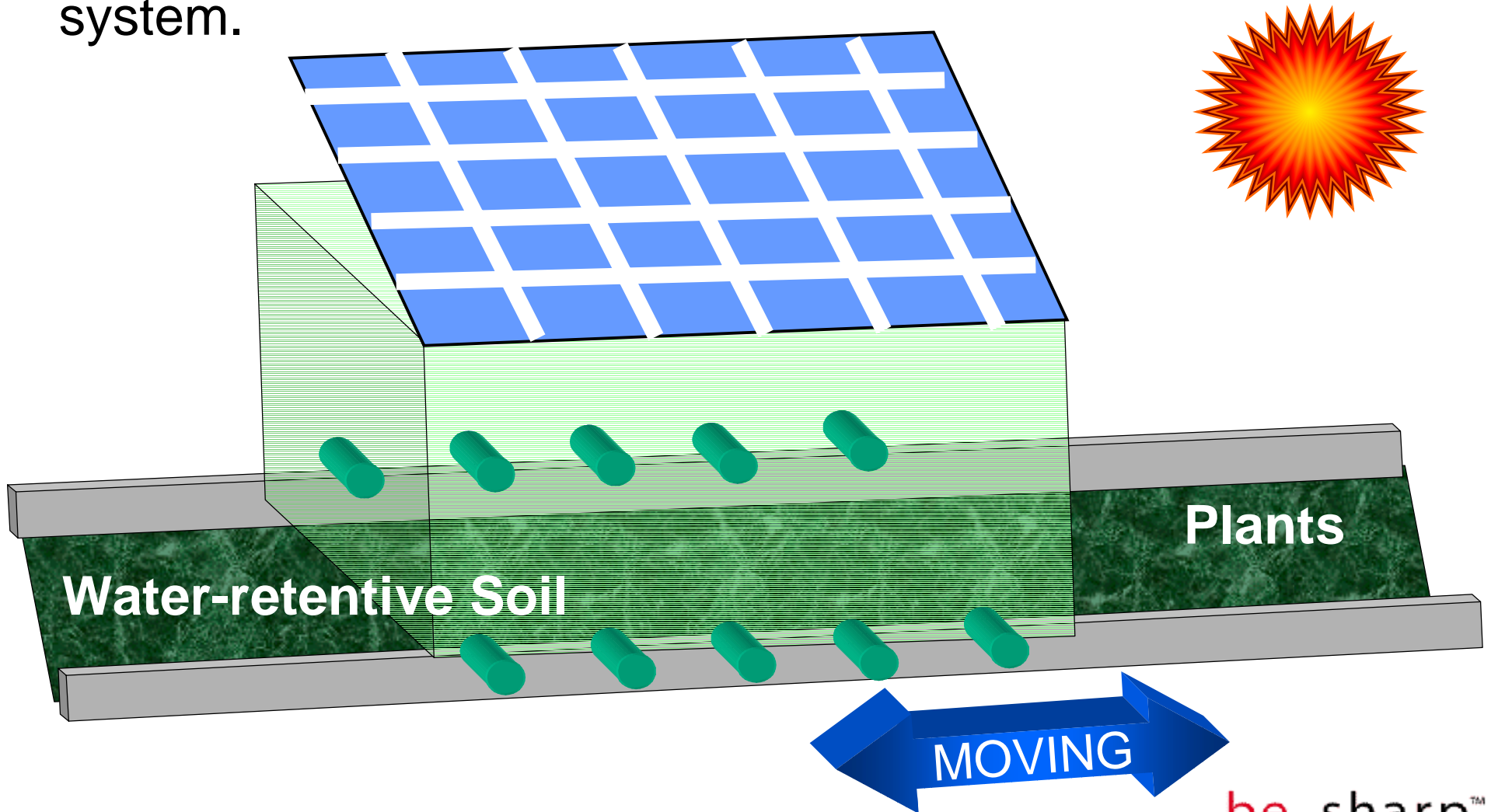
Light, Temperature, Fertilizer , ...

**Growth speed : 3 times faster**



This irrigation system can move because it is on the rail.

So, Large area will be able to be under irrigation with this system.





**point !**

PV industry turns into the promising industry by supportive policies and efforts of manufacturers.

**point !**

Public policies for supporting R&D are essential to develop renewable energy technology like PV system.

**point !**

A PV module, although its individual power is rather small, will make a big power generation to meet a large demand once it is built into systems.

**point !**

PV systems are recommended to be promoted as one of social environmental capital investments.

A bright sun is visible in the upper left quadrant of a clear blue sky. The sun's rays are visible, creating a lens flare effect. The word "SHARP" is written in a bold, red, sans-serif font across the center of the image. The sky transitions from a lighter blue near the sun to a deeper blue towards the bottom right.

**SHARP**