

Making poultry production more profitable and sustainable

Solar powered poultry egg incubator can trigger the development of small commercial poultry production improving the living conditions of off-grid area farmers and ensuring food security.



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Solar hatching system consists in three compartments:

Photovoltaic (PV) panels are the power supply unit. The array surface and power delivered depends on the panels' efficiency, the size of the farm and the incubation chamber's consumption. A chamber with 300 to 350 eggs capacity requires around 300W.

Energy storage unit, typically batteries equipped with charge controller and power inverter.

Egg incubation chamber, which should be well isolated to be protected from weather variation. Temperature and humidity must remain between 36 - 39°C and 77 - 67%.

Automatic temperature and humidity monitoring devices are highly advised, as well as ventilation for air circulation.



Bringing together the conditions for a successful transition

Different options for business planning:

- Initial investment in poultry hatching center : individual farmer / farmer group / farmer cooperative

NB: chicken and duck eggs supply can be considered either as a first investment only or as a regular source cost.

- Production : chicks, baby ducks and possibly duck broiled eggs (if broiler is acquired)

- Customers : individual farmer / farmer group / farmer cooperative / broiled eggs traders / small broiled eggs businesses / nearby market retailers.

Financing facilities:

- Subsidies or low-interest loans for initial capital cost ;

- Expended warranty on the solar system ;

- After-sale service (installation, first operation and back up maintenance upon need) ;

- Up-grading options to improve equipment.

Solar Home Systems (SHS) technology offering electricity for households exists and has been implemented in rural areas of Cambodia :

Entrepreneurs Du Monde (EDM) designed a solar lighting kit sold at 100 USD, tested and running in several poultry farms.

Electric chick hatchery incubators are available in the country but not widely known and properly tested.

Lighting Engineering Solutions (LES) offers a complete chick production technology (chick hatchery incubator, solar chick warming, night feeding) and solar & chicken raising extension training for 3,762 USD (5-7 years average lifespan).



1. Technology

Availability in Cambodia

Solar Hatching Center stakeholders:

- Chicken and duck eggs suppliers: own secured source of solar hatching center chicken raisers / chicken or duck farms / farmers group ;

- RET distributors: solar companies, agriculture companies or local resellers ;

- Village Livestock Agents / PDAFF / District Veterinary Agents / other private services who can provide vaccination services and train farmers on poultry production.



2. Human Resources

Actors involved

5. Social Client approach



4. Organization

From conception to distribution and maintenance



3. Information

How to spread the word?



Recommended steps to set up a profitable and sustainable poultry farm:

- 1) Mapping chicken traders in the region and early solar powered incubators' adopters ;
- 2) Identifying potentially interested farmers ;
- 3) Setting up demonstrations gathering potential target and resellers ;
- 4) Training in chick production and setting up of solar powered incubators ;
- 5) Training agents for simple maintenance operations.

- Engaging with traders
- Encouraging peer to peer recommendation by early adopters