

# Solving Irrigation for the Developing World!

Session 1 : Decarbonizing the primary production  
phase of the agri-food chain

# Inadequate Irrigation is a major cause of Agrarian Distress



Potential Loss of Output to the farmer is severe

# Cost of Diesel is causing Under-Irrigation & Skipping of Irrigation Cycles

Irrigation is dependent on costly diesel fuel to pump underground water

Diesel based Irrigation has become untenable due to high and rising diesel prices

**30%**

Of India's crops irrigated by diesel pumps

**\$2.2**  
per hour



Current Cost of Irrigation

**10 Million**

**Diesel Pumps**

Consume 3 Billion Liters of Diesel Yearly

# We are Innovating Irrigation in India

Replacing Diesel by Solar



Solar Irrigation As a Service via mobile trolley



Irrigation focused Solar Mini Grids



Solar Irrigation Pumps via Govt. Subsidy programs

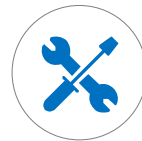
# Solar Irrigation-as-a-Service via Mobile Trolley

Technology & Business Model Innovation



## PAYG Solar Irrigation Service

**Sales Model:** On-demand Irrigation;  
Pay-as-you-go (Direct to Farmer),  
Lease/Rental (Direct to NGO, B2B)



**Engineering:** Solar power + IoT  
Electronics fitted on Battery  
operated Elec. Vehicle (EV)



**Technology Platform:** Easy  
booking, payment and use

Vision is to create an 'Uber'-like platform for farmers to schedule, book, and pay for irrigation services

# Claro's Business Model Address Key Challenges to Adoption

## **Cost** to farmer

**Opex:** Around 50% lower in operating cost than diesel  
\$1/hr for Solar vs \$2.2 for Diesel

**Capex:** No upfront cost (no purchase necessary)

## **Convenience** to farmer

**Solar Pump to your field:** Solar power + IoT Electronics fitted on Battery operated Elec. Vehicle (EV)

**Pay-as-you-Go Technology Platform:** Easy booking, payment and use (beta)

## **Fast Capital Recovery** Demand > Supply

**Increase Command Area:** Expanding service to more farmers

**Intelligent Irrigation Forecast:** Building actionable forward looking Farmer-crop-irrigation schedules (demand gen)

**Smart Trolley:** Movable (not stationary) to fulfill demand in a radius of 30 km

# Compelling Economics for Solar Irrigation as-a-Service

Movable Trolley + 3 x 2000 W Solar Carry Pack

\$1500

## Leasing

## Pay-as-you-Go

### Customer

NGOs | FPOs | Village Entrs

Small & Marginal Farmers

### Revenues

ARR : \$900 / year

ARR : \$1100 / year

### Cost

OpEx : \$200 / year (repairs)

OpEx : \$700 / year (O&M)

### Breakeven

~ **2 Years**

~ **4 Years**

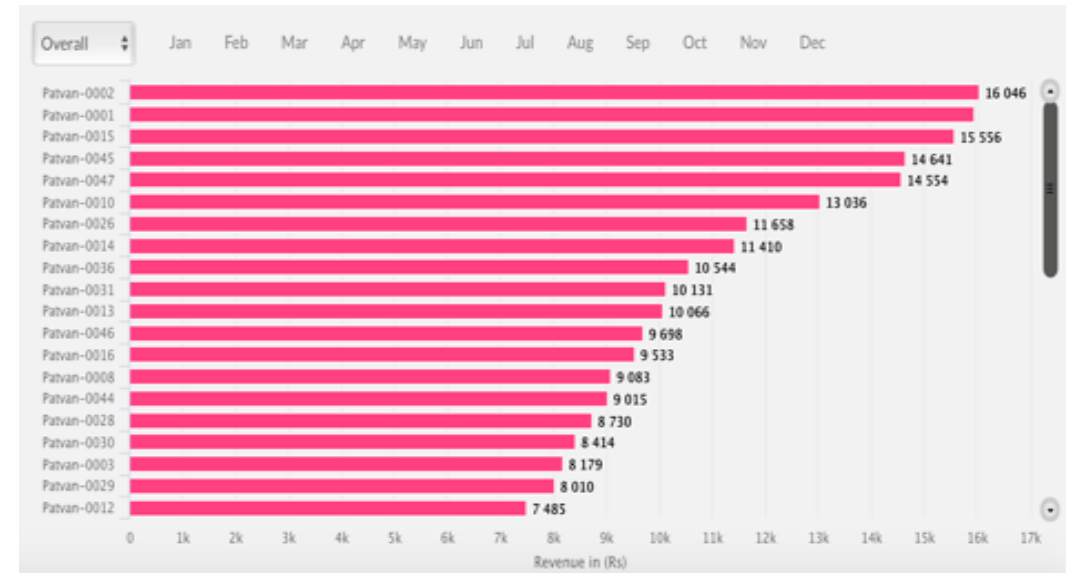
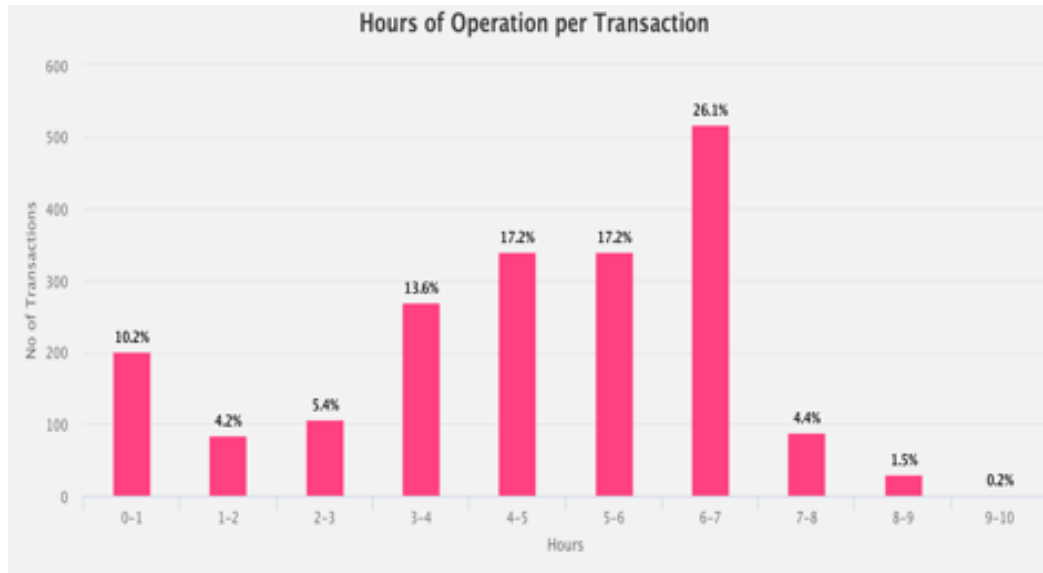
### Challenges

Misuse ; Underuse  
Loss of Interest

Operators Needed



# Strong Starting Market Traction for Solar Irrigation as-a-Service



**4** Avg. Daily Operating Hours

**250** Avg. Annual Irrigation Days

**50** Movable Trolleys in Operation (beta)

**1000** Farmers and a rapidly growing base



# An Interactive Solar Irrigation Map & Data Analytics Portal

**10,000+**

No. of Solar irrigation systems deployed

**25,000**

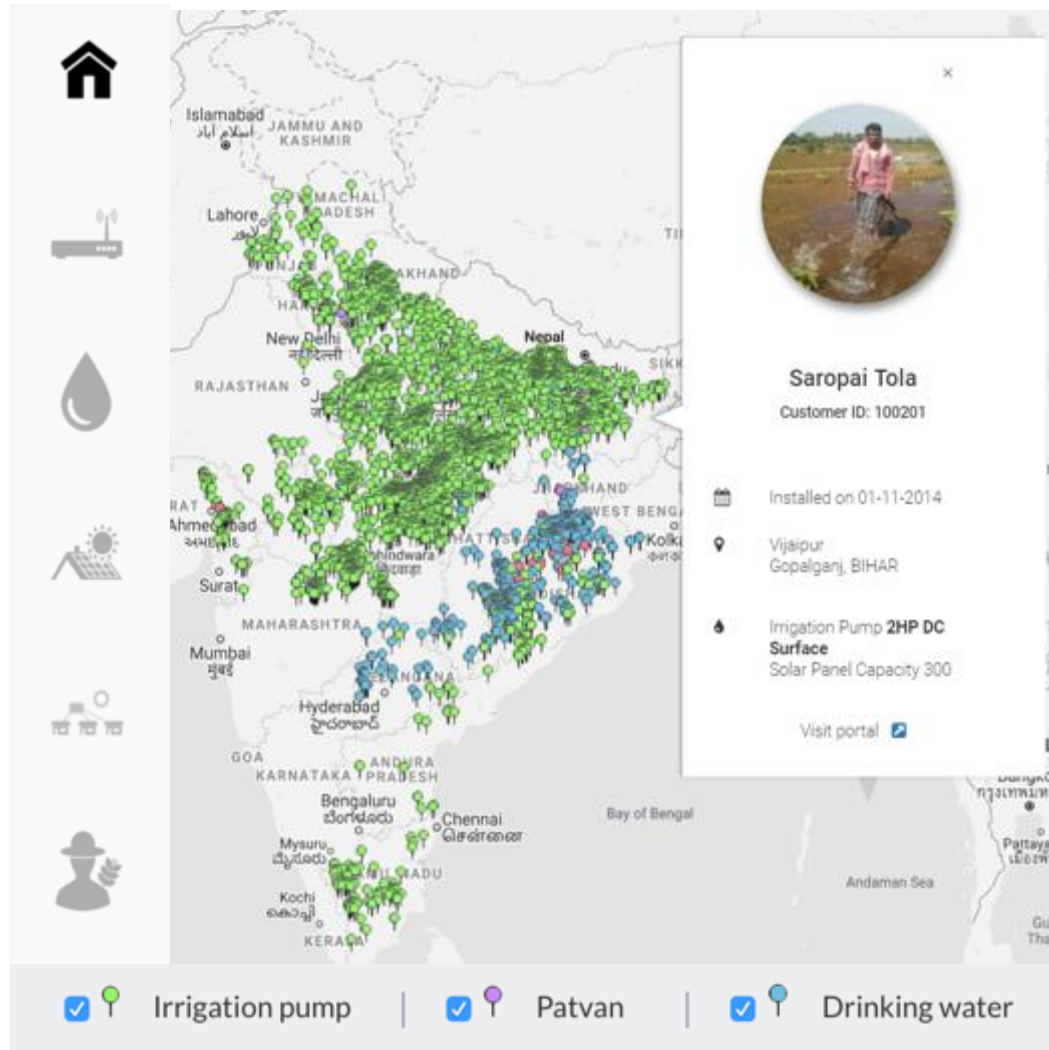
Farmers doing profitable agriculture using solar irrigation

**35 MW**

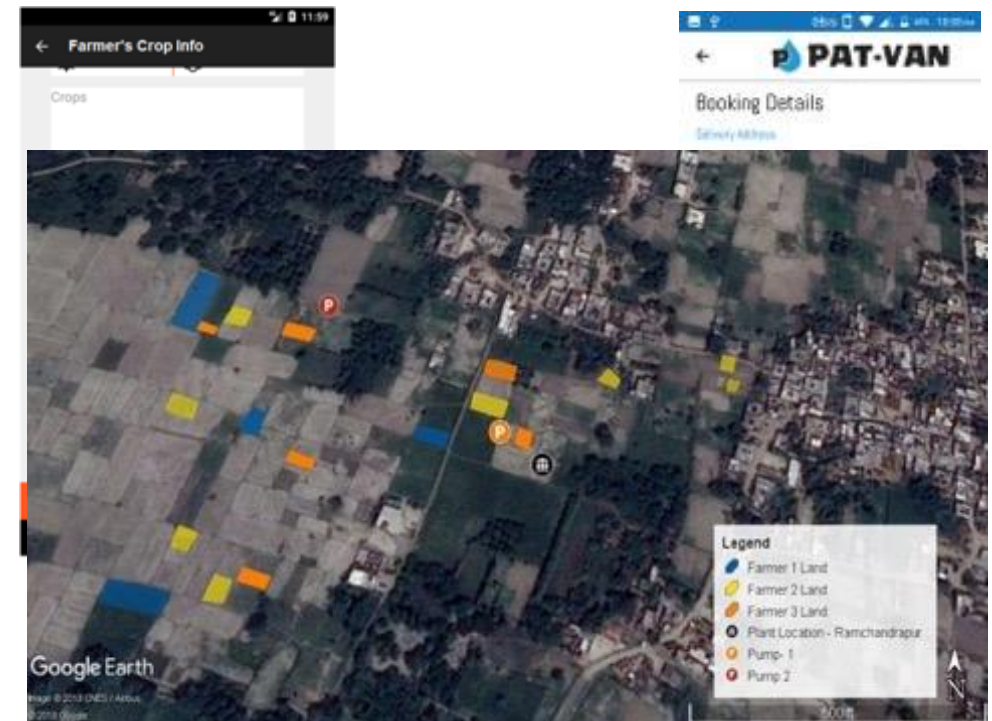
Solar capacity installed

**50,000**

Acres Under Cultivation



Creating India's Largest Database of Authentic Agri. Data



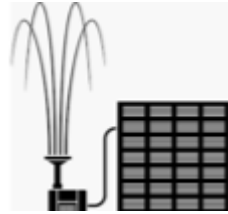
# Impact of our work

Solar irrigation delivers impact on several fronts

# THANK YOU



**\$315 million**  
Cumulative Farmer  
Income Generated



**10,000+**  
Solar Irrigation  
systems deployed



**3200+**  
Women farmers  
empowered



**50k acres** Under  
reliable and affordable  
irrigation



**35MW+**  
Solar capacity installed



**500 tons**  
Annual reduction in  
GH gas emissions  
through our solar  
irrigation systems



**~25%**  
Improved Attendance. Our Farmers with access to solar irrigation are more likely to send their kids to school



**THREE**  
likely to grow 3 crops a  
year



**200%**  
Average increase in  
farmer income using  
solar irrigation



**25k+**  
Estimated farmer  
families benefitted