

# Gerard Villoria

## CEO



Asian Development Bank

Consultant  
EV Expert



**pwc**

PRICEWATERHOUSECOOPERS 



Coron Island

Boracay Island



No. 1: Palawan, Philippines

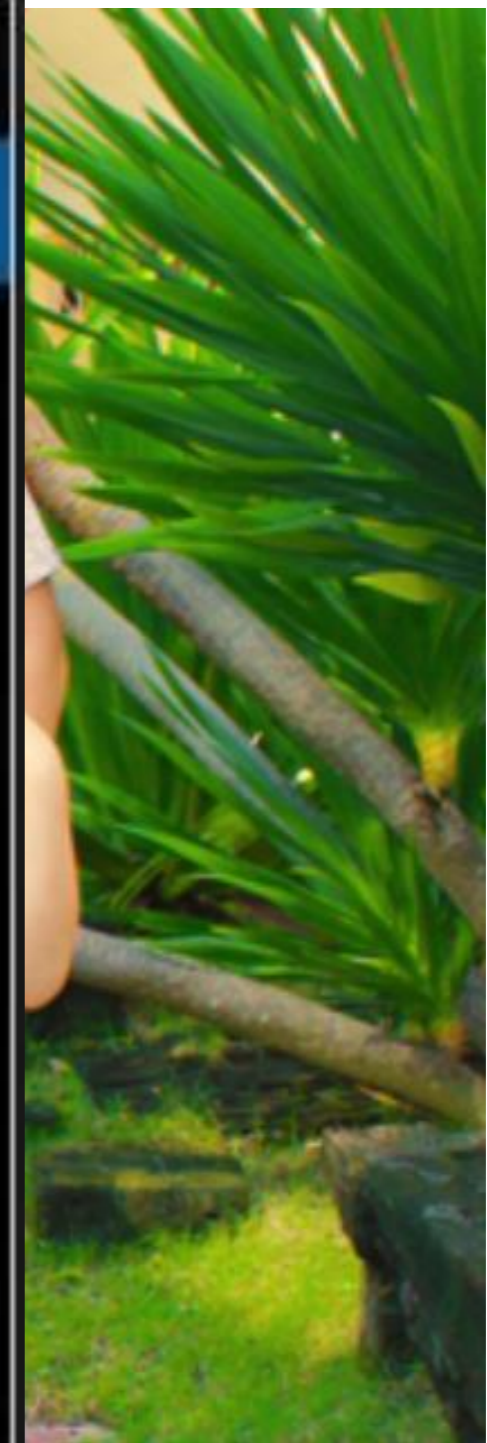
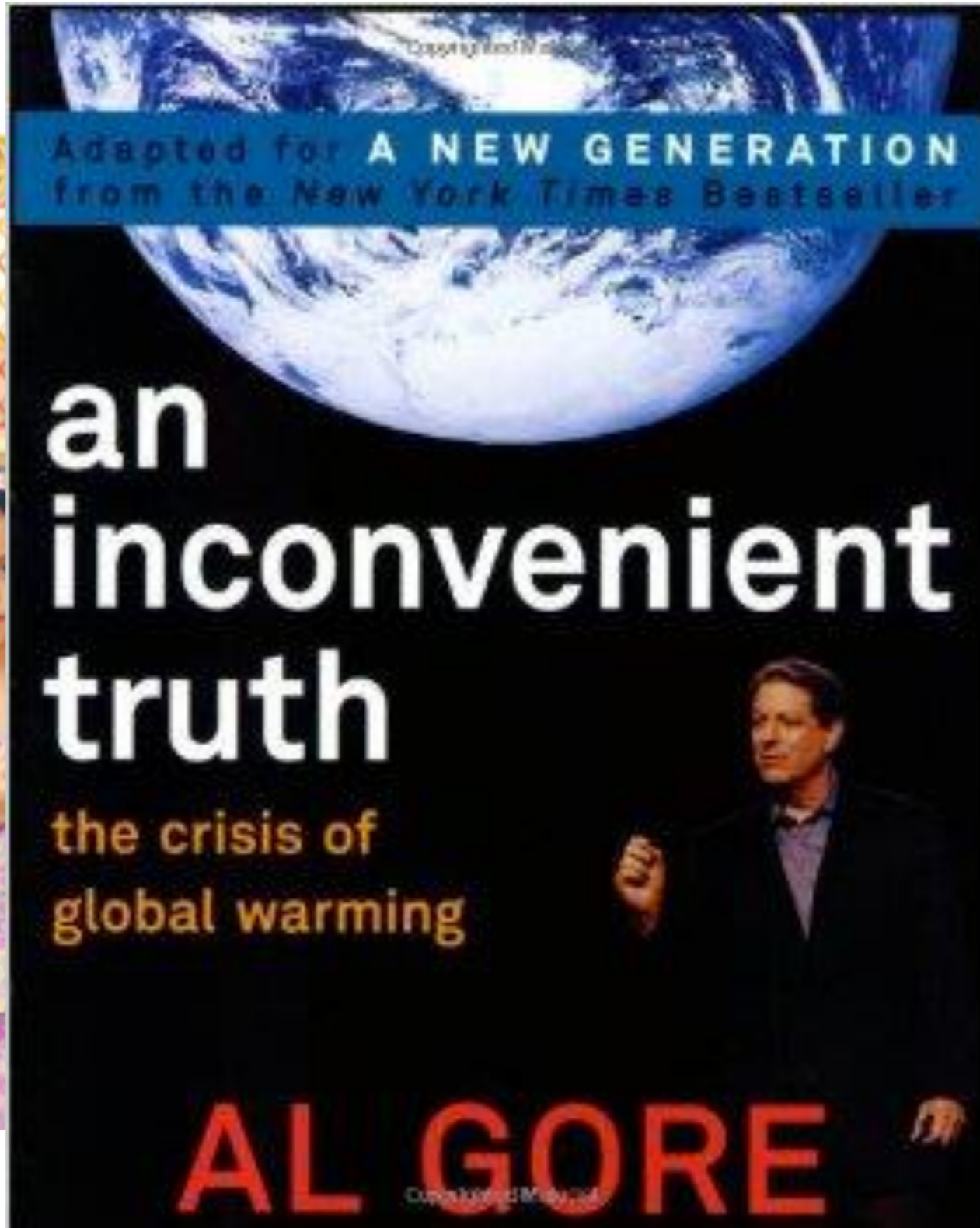


No. 2: Boracay, Philippines

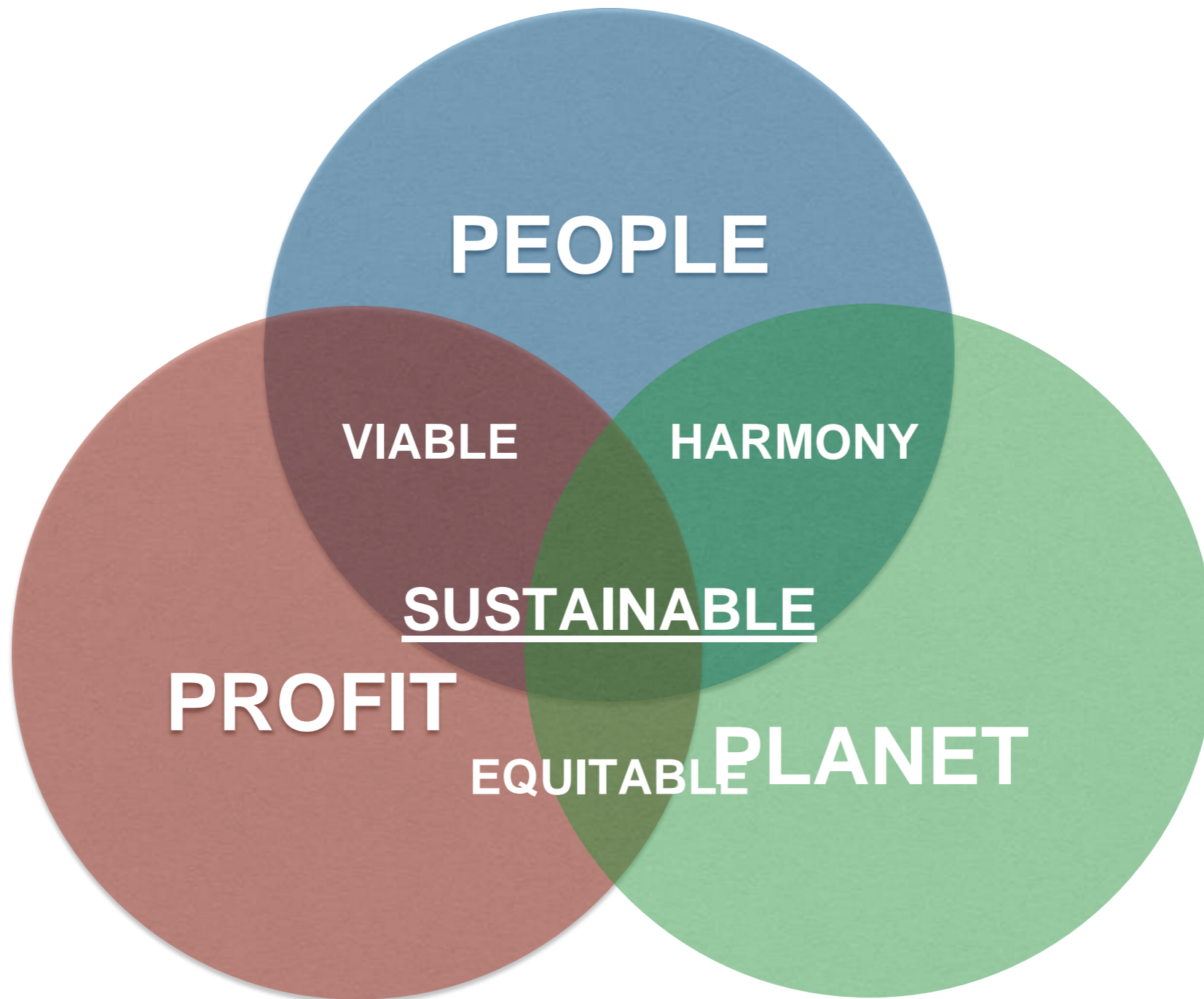
**TRAVEL+**  
**LEISURE**

**The World's Best Islands**

# Our Inspiration



# Our Business Principle



# Various Designs



# Our First Major Project - 2008

## 200 etrikes



# Our Second Major Project Ban 2010 Internal E-trike 2010

**FIRST PRESIDENTIAL ADB VISIT 2010**



**2011 INDEPENDENCE DAY PARADE**



**ETRIKE ADB INTERNAL LAUNCHING**



# Boracay Project 2011 - present





# PUM

Report PUM

Mission  
74095 A PH

# Grant Recipient

## Netherlands senior experts

GerWeiss e-trikes carry more passengers than conventional tricycles. GerWeiss also reduces emissions and noise pollution.

In addition to creating positive impact for the environment, GerWeiss also increases the income of its employees by explicitly targeting unskilled staff who have not graduated from high school.

### GerWeiss Overview

**Founded:** 2011

**Sector:** Electric vehicle

**Website:** <http://gerweissmotors.weebly.com/>

**Address:**  
Boracay Island, Philippines

#### Vision:

To help make the environment cleaner and safer, to make people healthier from this cleaner environment and to promote a vibrant economy through better livelihood for the bottom of the social pyramid (e-trike drivers)

#### Products and Services

E-trikes; battery charging station and services

### GerWeiss's Theory of Change



10 – 24 July 2016

In May 2014, Shujog estimates that the main costs and the higher capacity to carry more passengers is the increased income experienced by the group. GerWeiss also has a positive impact on reducing gasoline tricycles and increase income for the community's total impact creation.

2014	2015
\$805,554	\$1,406,804
\$2,922,700	\$14,155,794
\$3.6	\$10.1

Improvement of operations, with more e-trikes produced and increased social benefits. Increased efficiency of social investment. The estimated SROI picks up at a rapid rate as GerWeiss becomes more efficient and increase its manufacturing capacity spent on GerWeiss activities.

### GerWeiss's direct impact (2014-2015)

- change (1%)
- income (91%)
- number of drivers' income (5%)
- number of drivers' assets (2%)
- employees' income (1%)

Low-income drivers and reduce harmful impact experienced by the community in Boracay and attracting more tourists to the island.

The impact will increase exponentially, the environment cleaner and safer, to make people healthier through better livelihood for the community in e-trike industry could lead to an electric social and environmental impact.

Impact on Social Return
high school
• High
• High
• Medium

Shujog  
Kajapone 053952  
0mshujog

# Etrike basic ecosystem



Manufacturing



100% Buyers' Financing



Swapping System /  
Service Center



Solar Charging Station  
(to be implemented)

# Basic Problem



- Tricycles (67%)
- Buses (6%)
- Jeepneys (23%)
- Cars (4%)

# Comparison of the Physical Sizes of Vehicles

125



100



75



50



25



0



Source of Air Pollution

Produces 3.8 tCO<sub>2</sub>e per tricycle per year



**Noise pollution levels measured at 83-97 decibel (dB)**

According to the World Health Organisation (WHO), noise is second only to air pollution in the impact it has on health. It is a major cause, not only of hearing loss, but also of heart disease, learning problems in children and sleep disturbance.



Highly Polluting

Very Noisy

Un-Safe

Un-comfortable

High Maintenance

Poorly design

Hard To Drive

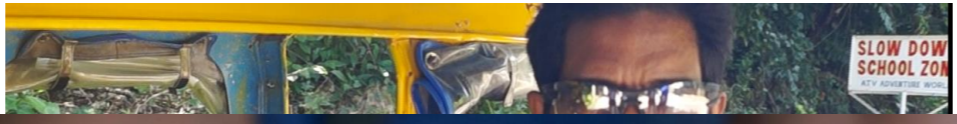
Driver always exposed  
to sun and rain

Under powered

Disorganized Operation

Low Revenue





The etrike is the complete opposite



Safer and more comfortable  
ride for the passengers



## ADB Erase to Driver (Manila)

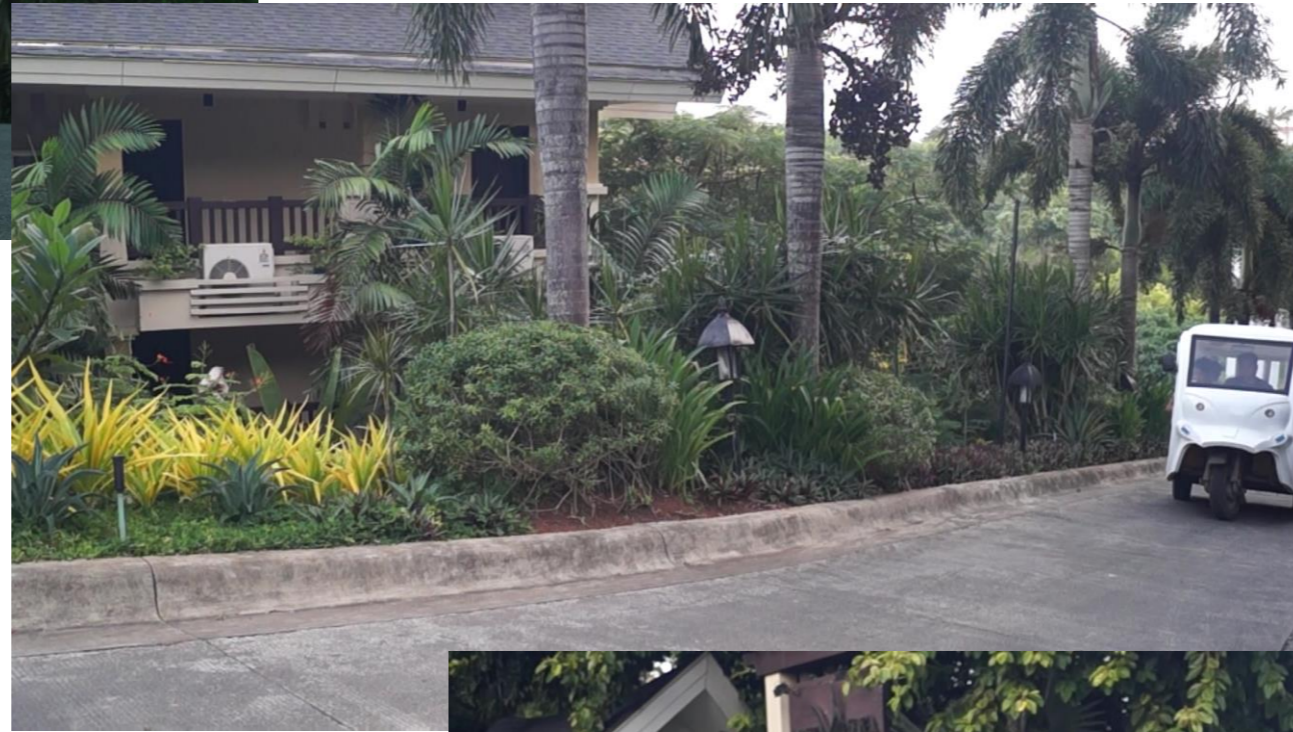


200% increase in income



Powerful motor

Can easily  
climb steep  
terrain



Smooth Ride



# Advanced Fast Charging System



For Higher  
Operation Rate

45 Minute Charging



Manual Swapping System

# GPS Real Time Tracking System Advanced Battery Monitoring System

Real Time

Device Nickname  
G20

Last Updated  
2 hours ago

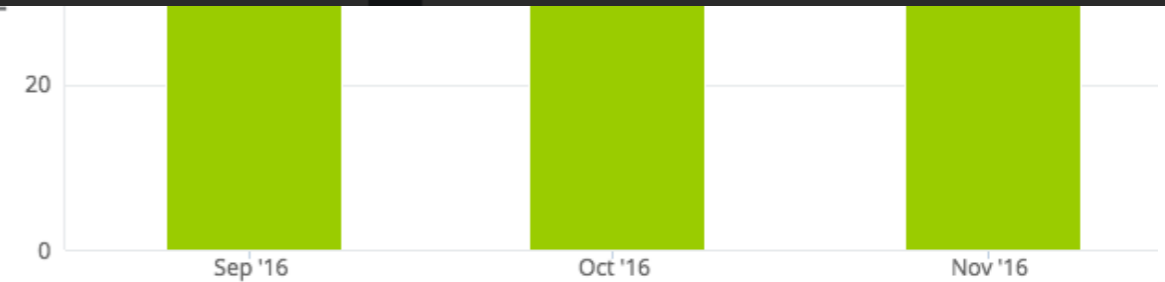
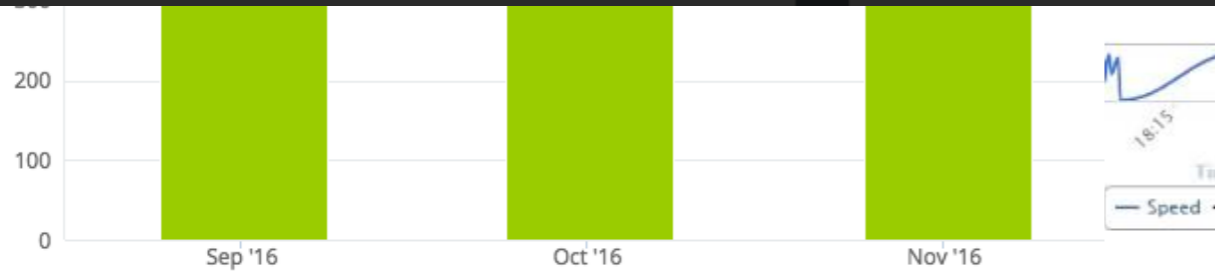
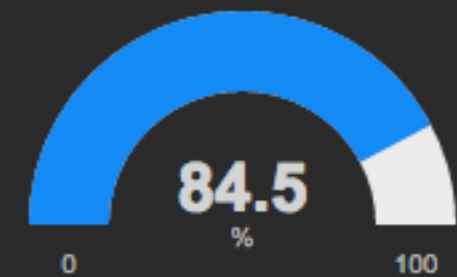
Total Battery Cycles  
1106 Cycles

Battery Current  
4.4 Amps

Highest / Lowest Temperature  
44°C / 32°C

- Discharge Enable ON
- Charge Enable OFF
- Error ON

Battery State of Charge



# Solicits Advertisements

## For additional revenue

### Advanced Battery Monitoring System



# Challenges during our initial implementation

- ~~1. Bad Perception about strikes~~
- ~~2. New Industry / New Product~~
- ~~3. Technically no model to follow~~
- ~~4. Products are untested~~
- ~~5. No Market Demand~~
6. Expensive parts and components
7. The market is huge (valued at \$20B) but ~~the market has no financial capability /~~ financial records
- ~~8. No banks / financial institutions~~ interested to provide funds for the buyers and small businesses
9. High Costs of Financing

# Future Plans for Scale up

Share Manufacturing IPs

Provide Technology Transfer /  
Capacity Development

Establish Service Centers and  
sufficient supply of spare parts

Organized Fleet Management

Create a Localize  
Lithium Battery Assembly

Create a Network  
Solar Charging Stations

Organized Non- Profit  
Cooperatives

Carbon Credit

Create a second hand market  
and EOL program for the lithium  
batteries

Solicit CSR Funds

# Future Plans for Scale up

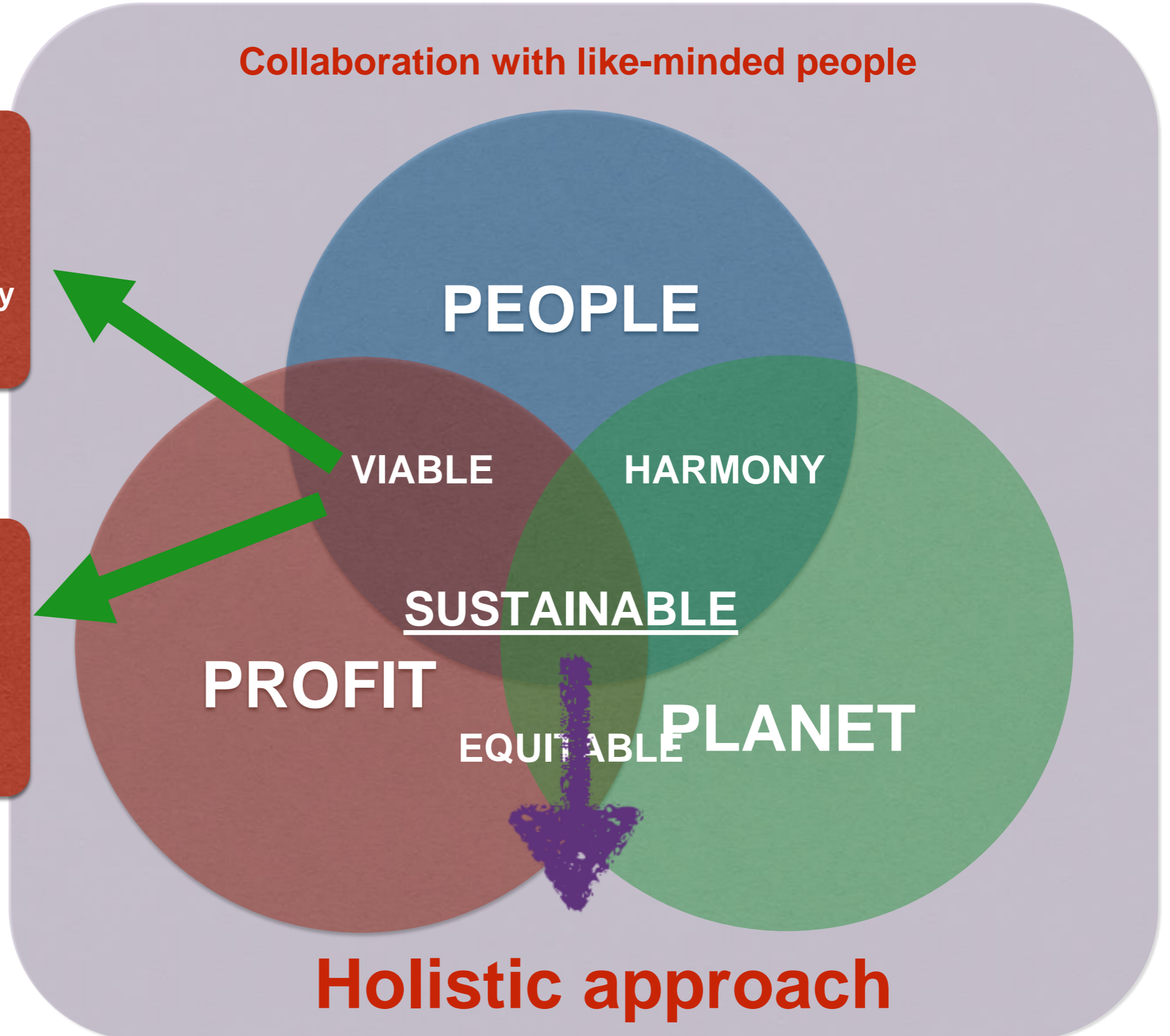
Collaboration with like-minded people

## Manufacturing Revenue

130% Capital Recovery every 4-month cycle

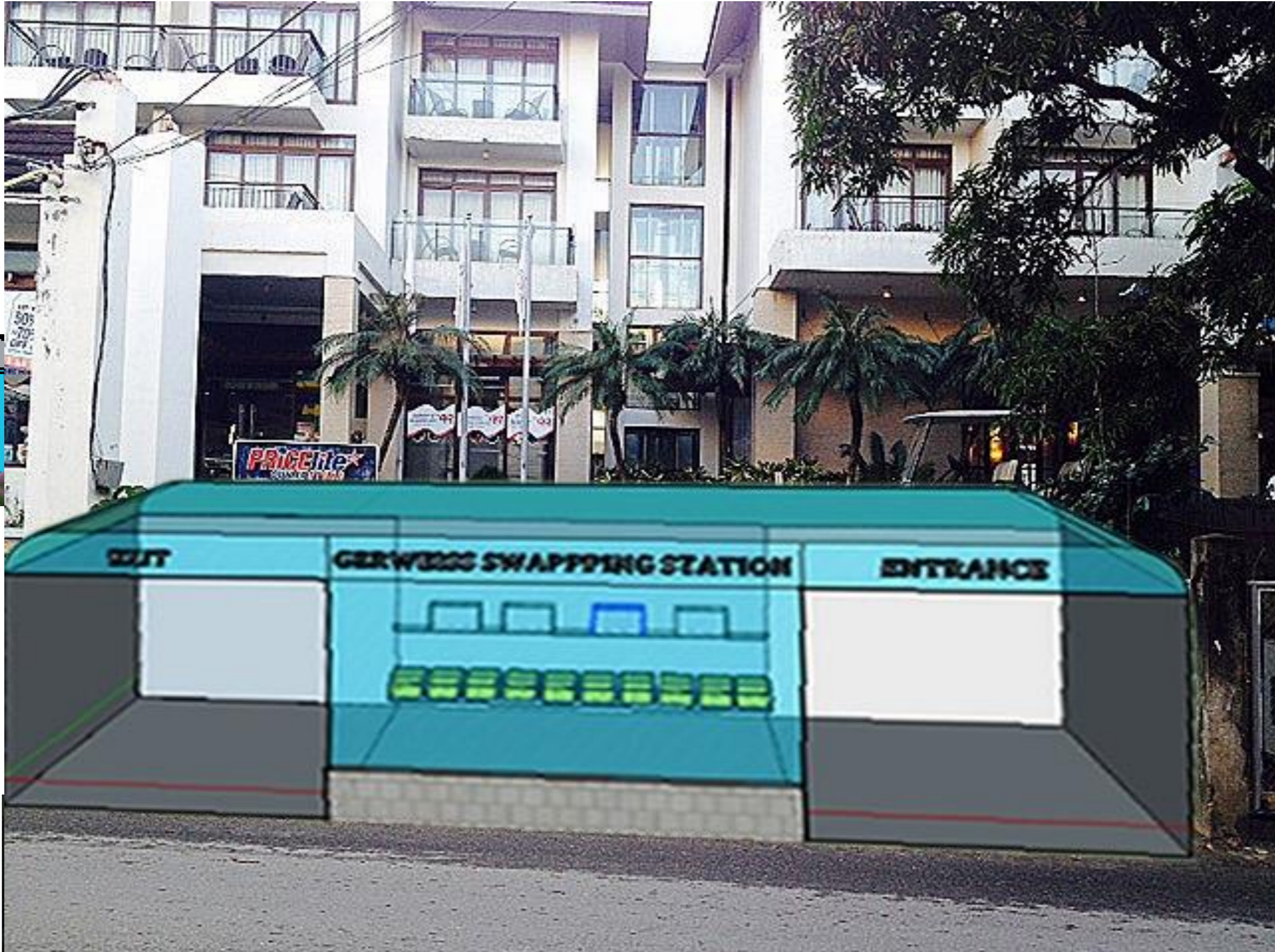
## Battery Leasing Revenue

2.5 years Payback period





# Planned Solar Charging System



Satellite Swapping Station



Renewable  
Source



Livelihood  
in the morning

Source of electricity  
at night for lights  
and cooking



12v battery powered  
induction cooker



**Thank you**

**To GOD be the  
Glory**