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# Fiji Prius Battery Reuse Project Brief

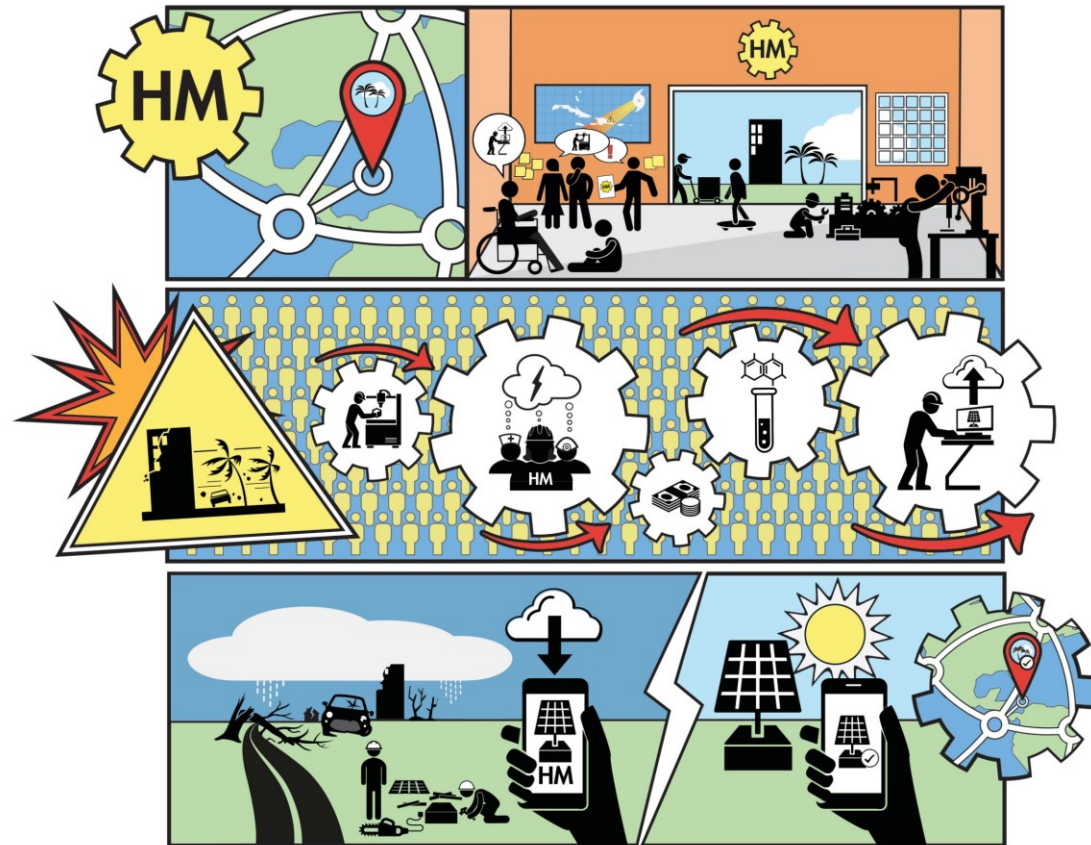
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Presented by Andrew Lamb

# HUMANITARIAN MAKERS

UNITING TO SUPPORT DISASTER RESPONSE



www.humanitarianmakers.org  
@H\_Makers

<https://www.humanitarianmakers.org/>



Field Ready meets humanitarian and reconstruction aid needs by transforming logistics through technology, design and engaging people in new ways. We make useful items where they are needed to solve problems locally. We pass on these skills to others through training and capacity-building. We are pioneering innovative approaches to the toughest challenges regardless of the sector. The impact of this is dramatically improved efficiency making aid faster, cheaper and better.

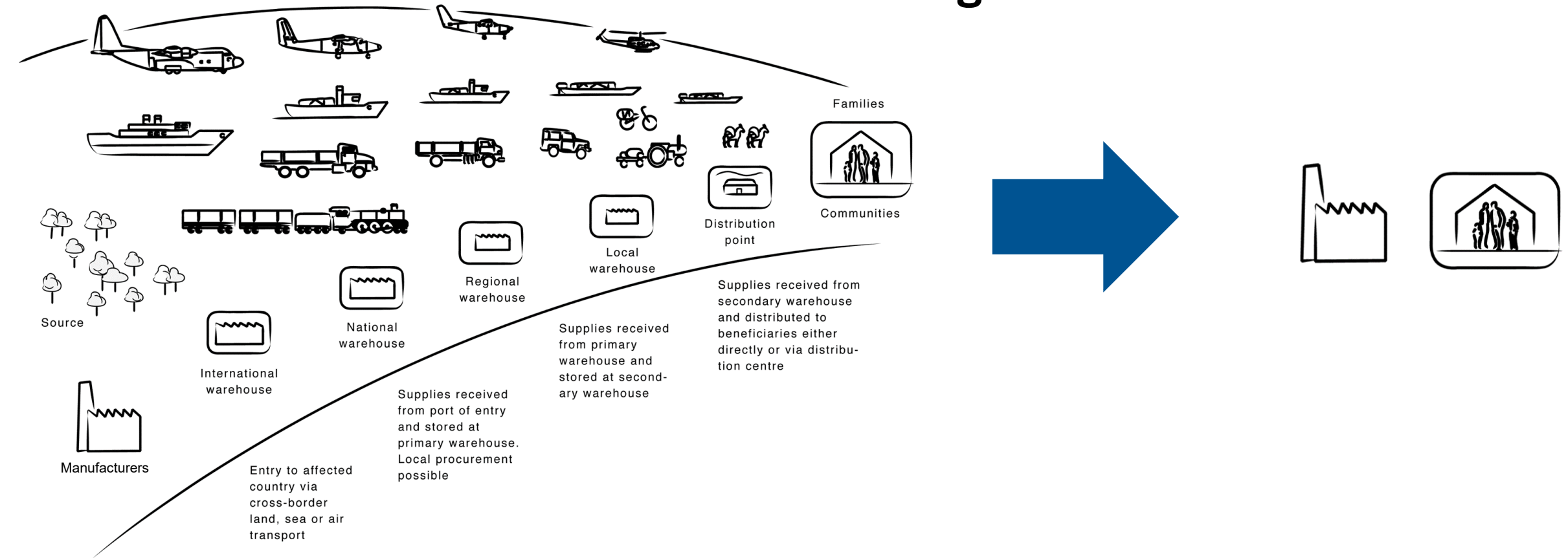
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# Our Approach

## Transforming disaster relief



**Today's approach:**  
make aid supplies far away & ship

**Tomorrow's approach:**  
make aid supplies in-the-field



# How we work at Field Ready

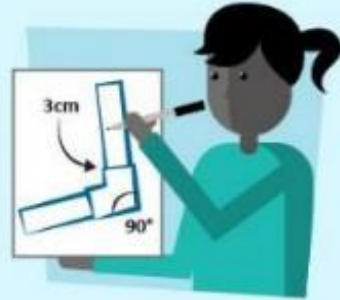
## Assess

Look, listen & understand



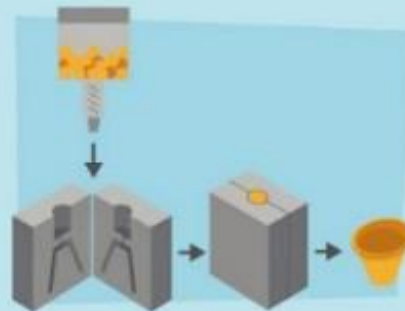
## Design

Ideate & develop concepts



## Make

Manufacture useful things



## Share

Test, distribute & train others



## Lead

Replicate where there is need



FIELD READY

# Problem

Background: In Fiji, almost ½ of the cars are Prius. Fiji has been importing 10-year-old Toyota Prius cars as personal cars, taxis from Japan. Japan has a law banning the usage of any cars of more than ten years old, and they sell these cars in Pacific countries like Fiji.

Prius is great. It is the first type of hybrid electric car. However, batteries won't last for more than 15 years. There is a massive problem with these batteries piling up in the waste field in Fiji.

Unfortunately, there is no current sustainable exit plan for them once the batteries die. On the other hand, power for households is a concern, especially during a disaster.

There is an **opportunity** to use these batteries, as they are still good enough for household, for example, it can be a backup battery for solar panel system.

Possible application:

[Solar panel and power for home:](#)

[Access to clean fuels and technologies for cooking \(% of population\) 39.56 %](#)

# Constrain

There is no electronics factory and makerspaces in Fiji. Machines and equipment are all imported in Fiji. Field Ready Fiji team has an office in Fiji with 3 3D Printers. There is one university work shop.

In order to think about what machines to use, we need the calculation of the Prius battery first.

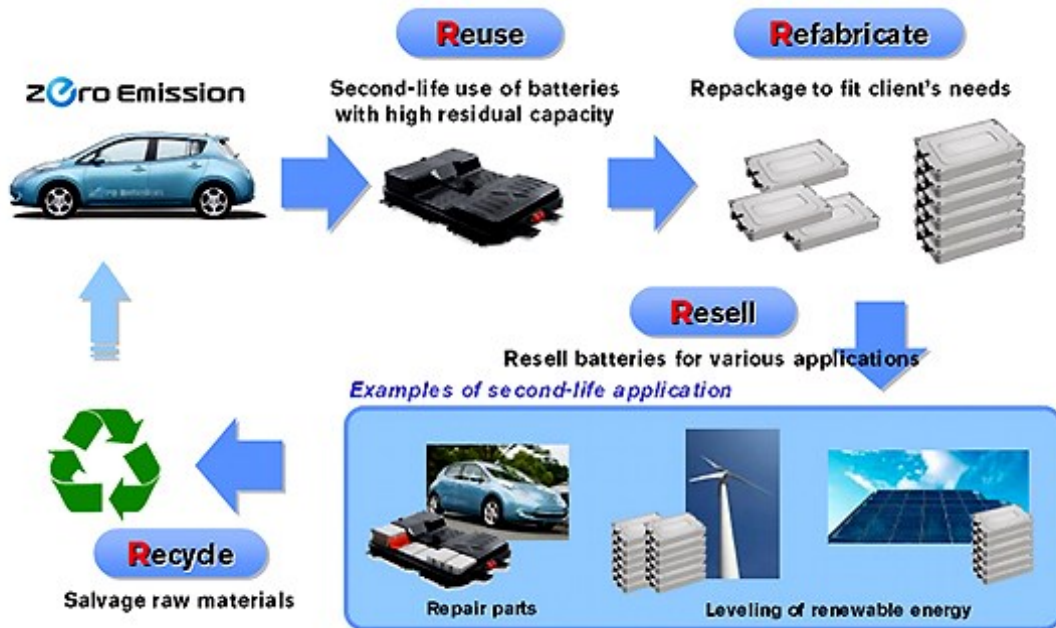
Energy is not expensive but there are some areas along the cost are lack of energy

# Proposed Solution

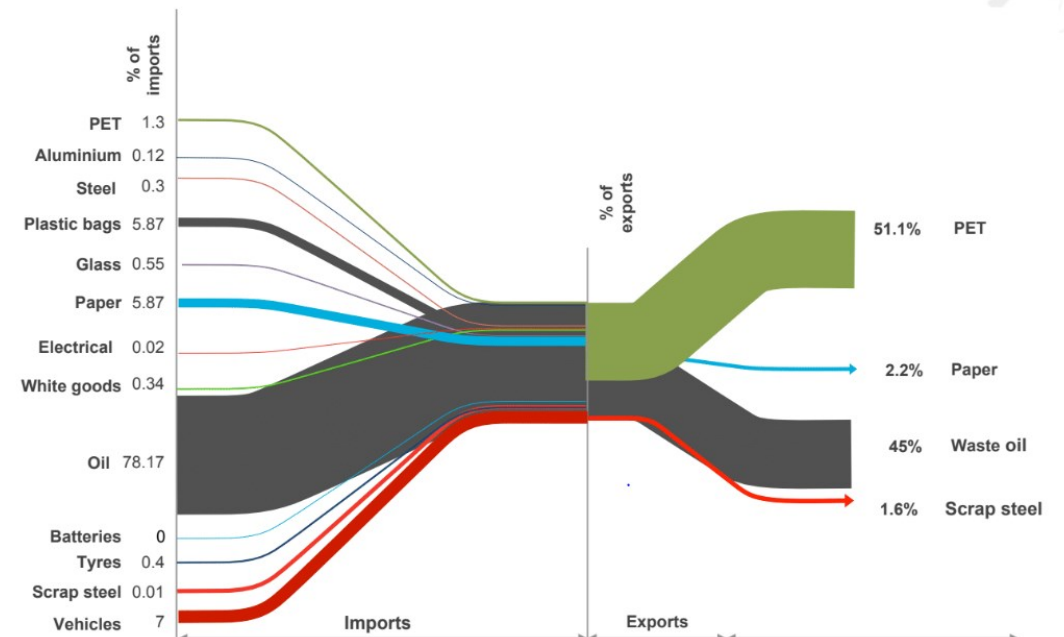
## Reuse “dead” Electrical Vehicle batteries to power households

*Developing a system to effectively and reliably convert power from electrical vehicle batteries for household use.*

Batteries are still good enough for household, (backup factory for solar panel system)



Material flow - Fiji



Source: Anne Prince Consulting, July 2017  
Note: The percentage of imports and exports displayed relate only to the proportion of the 15 materials categories studied, not total imports/exports



# Project Brief

Two problems can be solved if a viable business model and product design can be developed to reuse the “dead” batteries into a power source for the household.

1. Electronics charge controller to convert batteries

What do we need to charge?

1. Test that we can run to use local batteries, some batteries might be too dead!

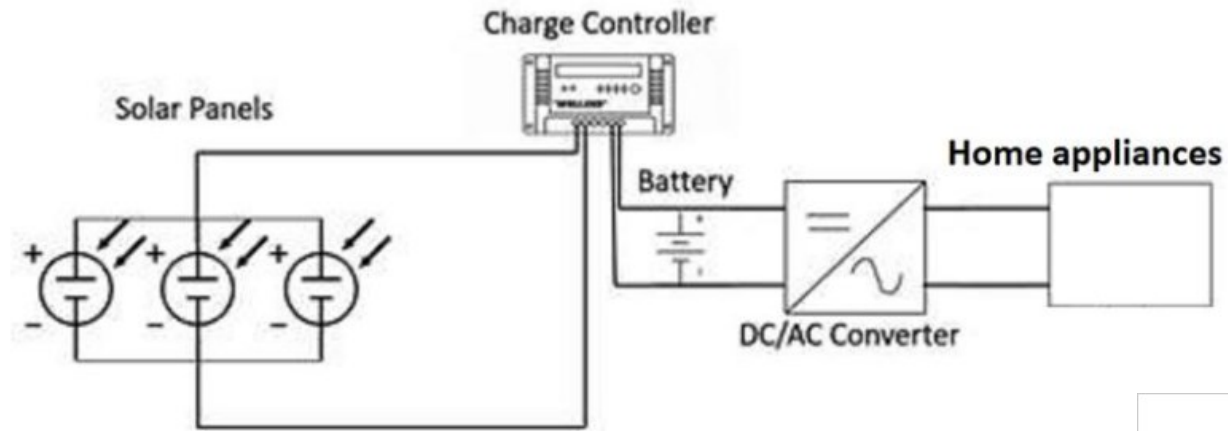
What is the Calculation of Prius battery?

1. Nice product industrial design so people want to keep them at home

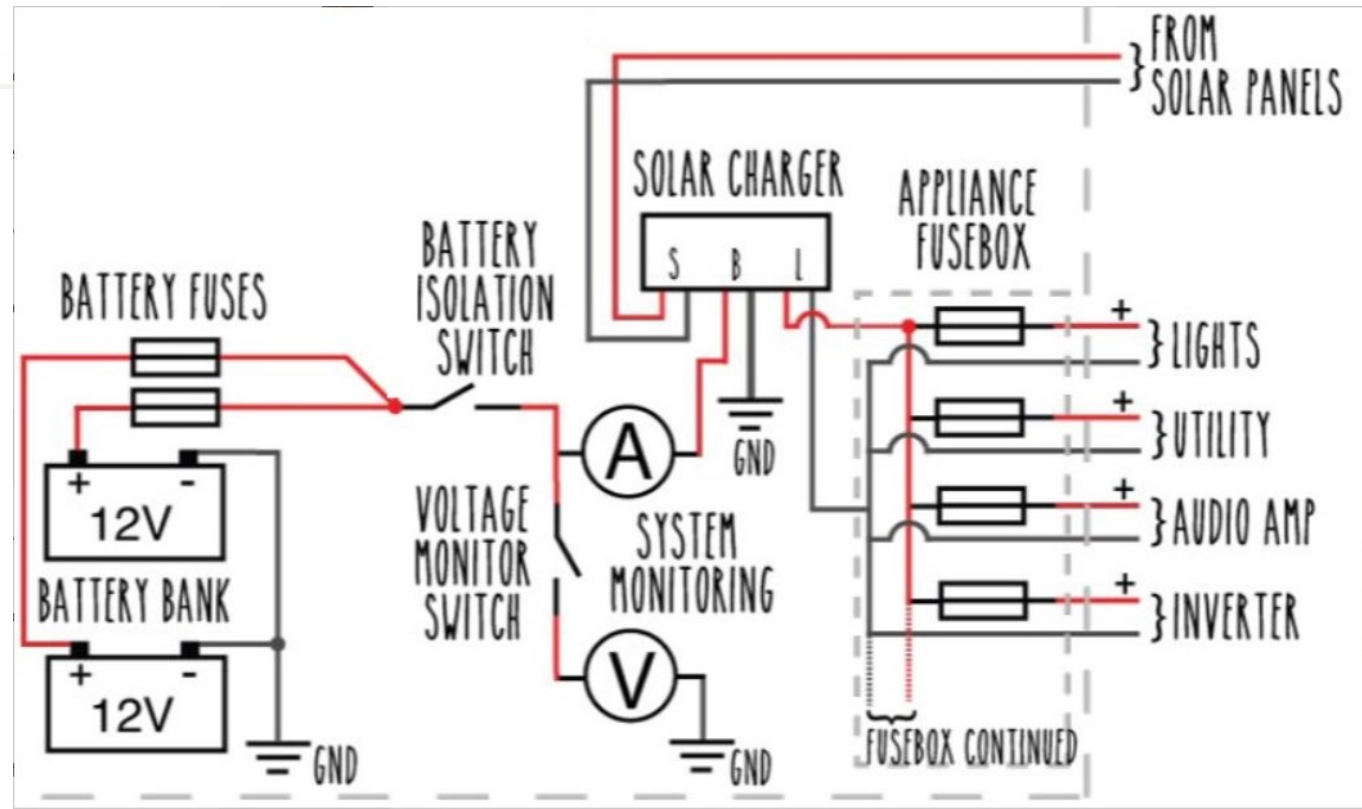
2. Business model based on Fiji

# Knowledge: solar panel examples

Here is a simple home solar panel setup:



Here is a diagram of the solar panel setup for a camper van:



# Resources

1

## Funding

2

## Knowledge

3

## Contact

Electrical engineers in Field Ready Fiji:

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## Partners

# Thank you

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