Improving Communication and Technology in the Agricultural Sector

Addressing the Challenges of Praedial Larceny

code for the caribbean

RADA

Mona School of Business & Management

MSBM

Ministry of Agriculture and Fisheries

SlashRoots

Research Findings Workshop

September 27, 2013

WORKSHOP GOALS

Share our research and early findings.

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- Discuss opportunities for intervention.

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- Prioritize focus of rest of the programme.

Code For The Caribbean (CftC) is a new initiative that partners with innovative government agencies, helping to bring civic innovation to the core of Caribbean governance.

WHAT IS PRAEDIAL LARCENY

The Larceny Act - Praedial Larceny-

Every person who steals, or, with intent to steal, cuts, breaks, roots up, or otherwise destroys or damages, the whole or any part of any tree...

The Larceny Act # 13

"Jamaican farmers suffer losses of up to $5 billion per annum due to praedial larceny."

Former Minister of Agriculture and Fisheries,

Dr. Christopher Tufton 2010

RESEARCH PROCESS

PROCESS

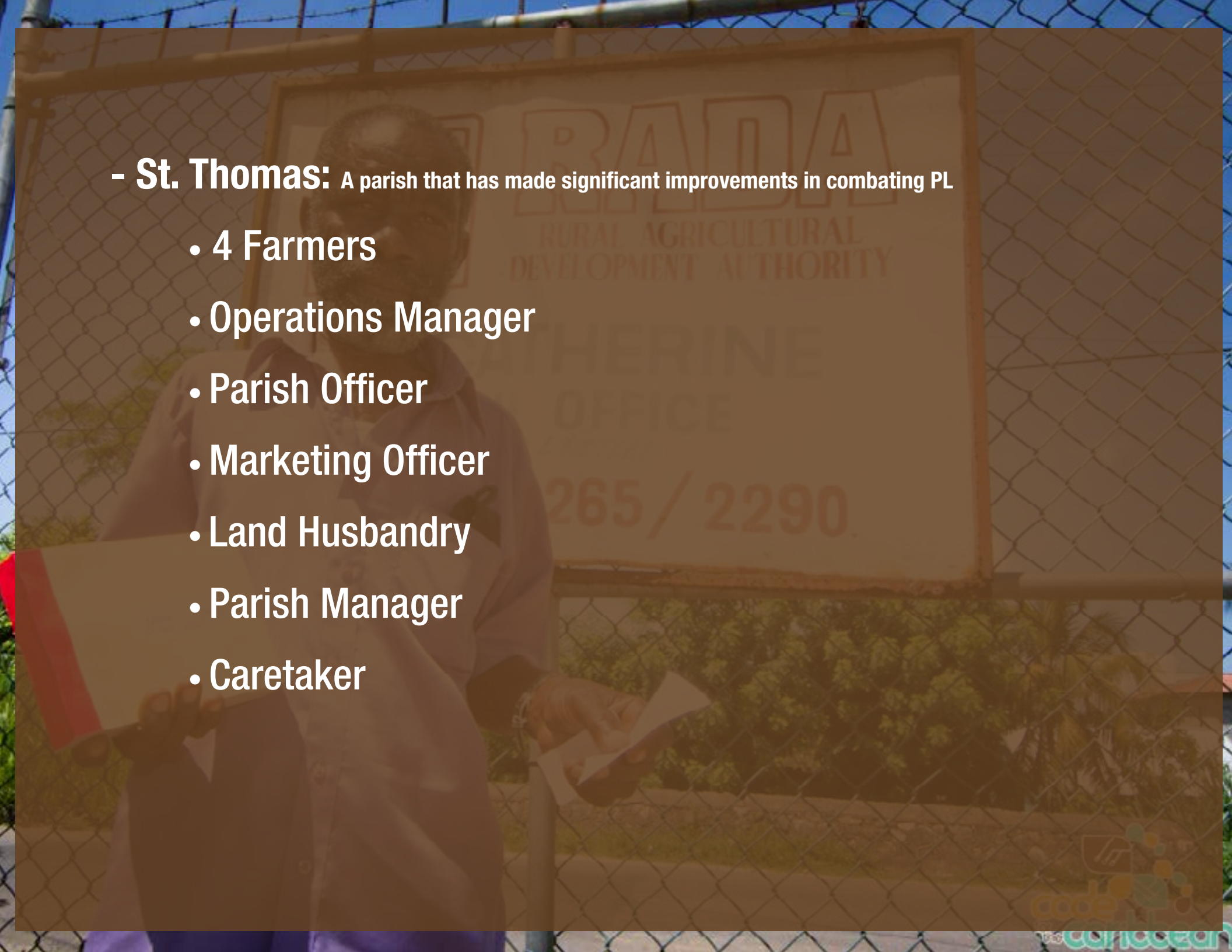
To understand how to improve communication between the Rural Agricultural Development Authority (RADA) and the farming community, using Praedial Larceny (PL) as first example, we researched with:

1. Community Respondents - Small/Medium/ Large farmers and Vendors.
2. Institutional Respondents - Ministry of Agriculture, RADA, JAS and Police.

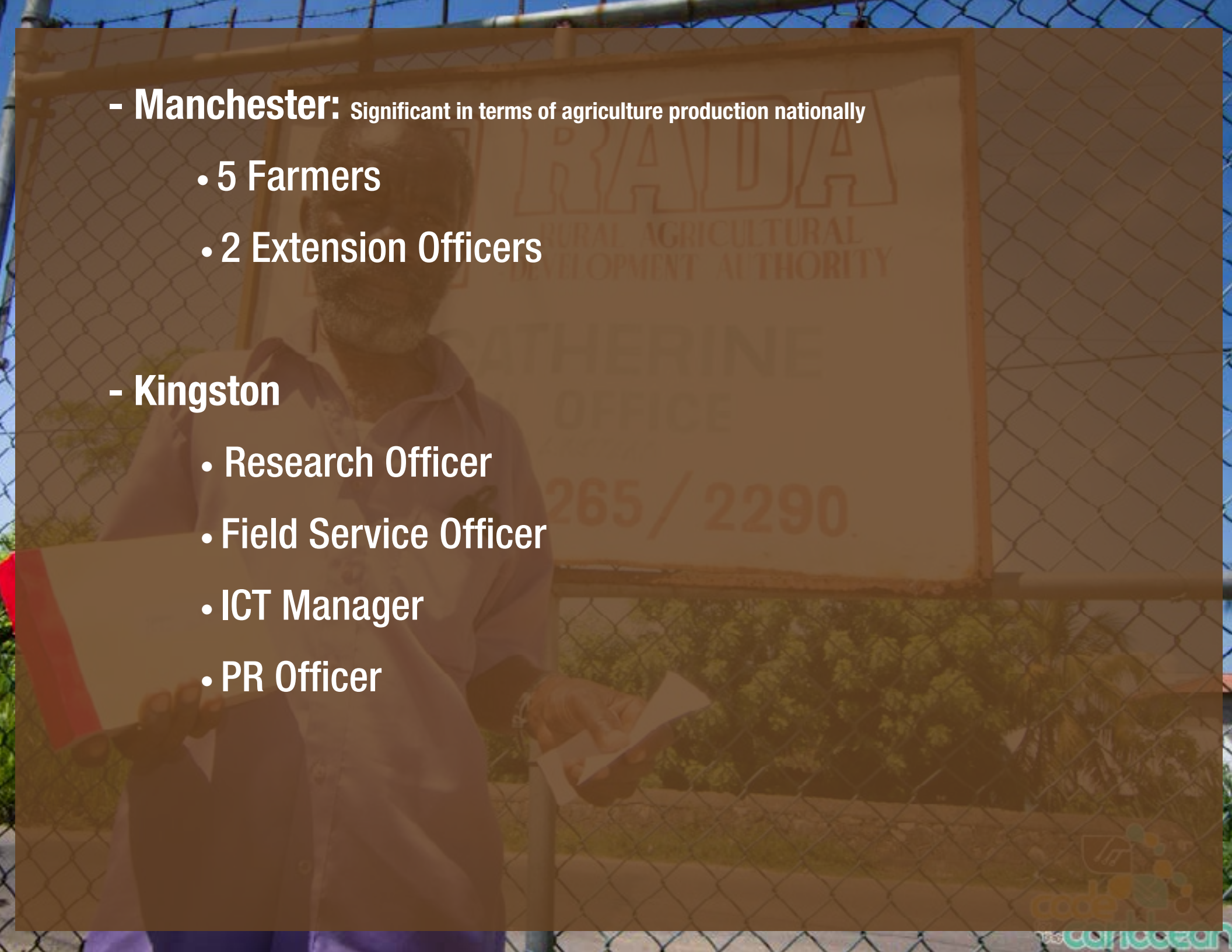
3 Parishes. 1 Agricultural Show

- **Denbigh / Clarendon**
    - 2 Extension Officers
    - 8 Farmers
    - Praedial Larceny Division

- **St. Catherine:** Choosen due to Urbanized agriculture setting with significant challenges of PL
    - 4 Farmers
    - 2 Extension Officers
    - Farm Manager



- **St. Thomas:** A parish that has made significant improvements in combating PL
  - 4 Farmers
  - Operations Manager
  - Parish Officer
  - Marketing Officer
  - Land Husbandry
  - Parish Manager
  - Caretaker



- **Manchester:** Significant in terms of agriculture production nationally
    - 5 Farmers
    - 2 Extension Officers

- **Kingston**
    - Research Officer
    - Field Service Officer
    - ICT Manager
    - PR Officer

NEXT STEPS

1. Examine farmers needs within:

a) 'in the field' context

b) issues with praedial larceny

c) relationship with RADA and

d) community challenges.

2. Examine Extension Officers within their space and observe technology use.

3. Identify potential areas for recommendation & intervention.

4. Discuss interest in and feasibility of different recommendations.

Design Concepts

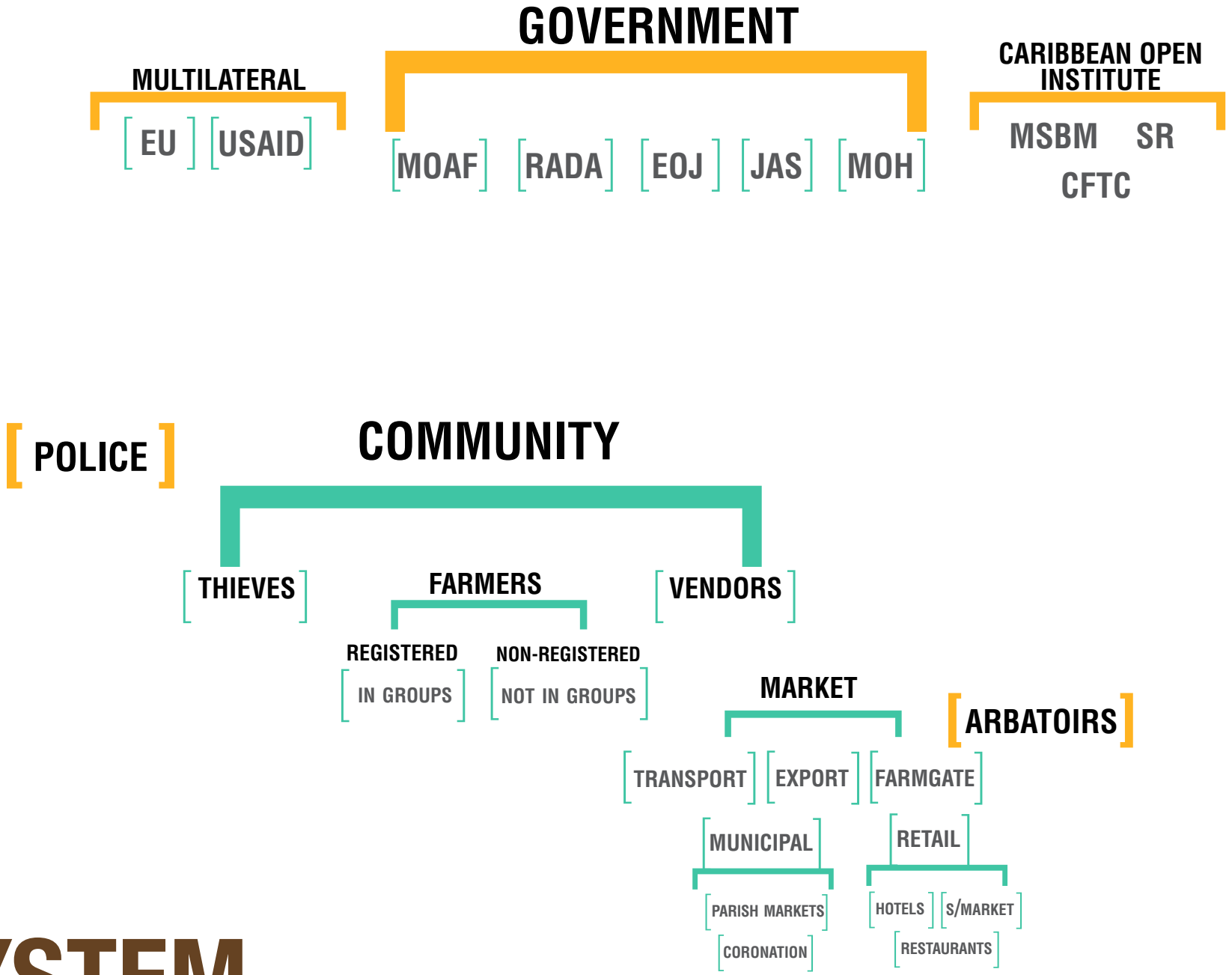
These are early, we are just testing the water, we want ideas. There are many experts here. You may have tried or thought about things like this already, so let us know what has/hasn't worked.

User Stories

Help us to frame our thinking by thinking about a user within a context instead of a generic "user".

N.B. Our user stories are a composite of a few patterns we found in the field research and do not represent actual people. We interacted with a small percentage of the population and this is not quantitative data.

ECOSYSTEM MAP



COMMON USERS

THIEF
FARMERS
EXTENSION OFFICERS
POLICE
PRAEDIAL LARCENY

FARMERS

A male/female small farmer who is over thirty and who has loved farming since he was young, he was originally introduced to agriculture by his parents. He now uses leased land to farm in a community where people determine what to farm based on location, water availability, and experience. “I always plant one acre for myself and one acre for the thieves.” He claims to have a receipt book for his crops and is not interested in farmer groups because the groups are not organized and he does not see the benefit in joining.

EXTENSION OFFICERS

A RADA extension officer who loves agriculture and who, earlier this year, received a tablet to aid with data collection in the field. The available internet connection to access the Agricultural Business Information System(ABIS) is not always available and the E.O. prefers to use the SIM card in their personal feature phone. The extension officer is not able to support all farmers in their district because the travel and communication required are greatly hindered by a lack of resources and time, the sheer number of farms they are expected to visit for verifying farmer data is not feasible. Despite these challenges, RADA's budget is cut each year, and articles in the local media continue to be critical of RADA's operations.

POLICE

A member of the ISCF for 9 years. Recognizes that PL is a big problem in communities. Understands the legislative difference between PL and Simple Larceny. Uses discretions to prosecute persons who travel without a receipt. Has a personal contact at the RADA Parish office that he will call to verify it produce in transit in legal. Acknowledges that police aren't able to respond to all PL incident reports however shares the concern that when PL offenders are brought in no-one from the community comes to identify them. Made effort to set PL precedence in the court system.

THIEF

“Thieves have gone high tech now.”

“Due to the clamp down of the Drug Trade, thieves have ventured into others means of criminal activity.”

“Gun for meat trade with Haiti.”

“Thieves are more bare-face now, the come at any time instead of only at night.”

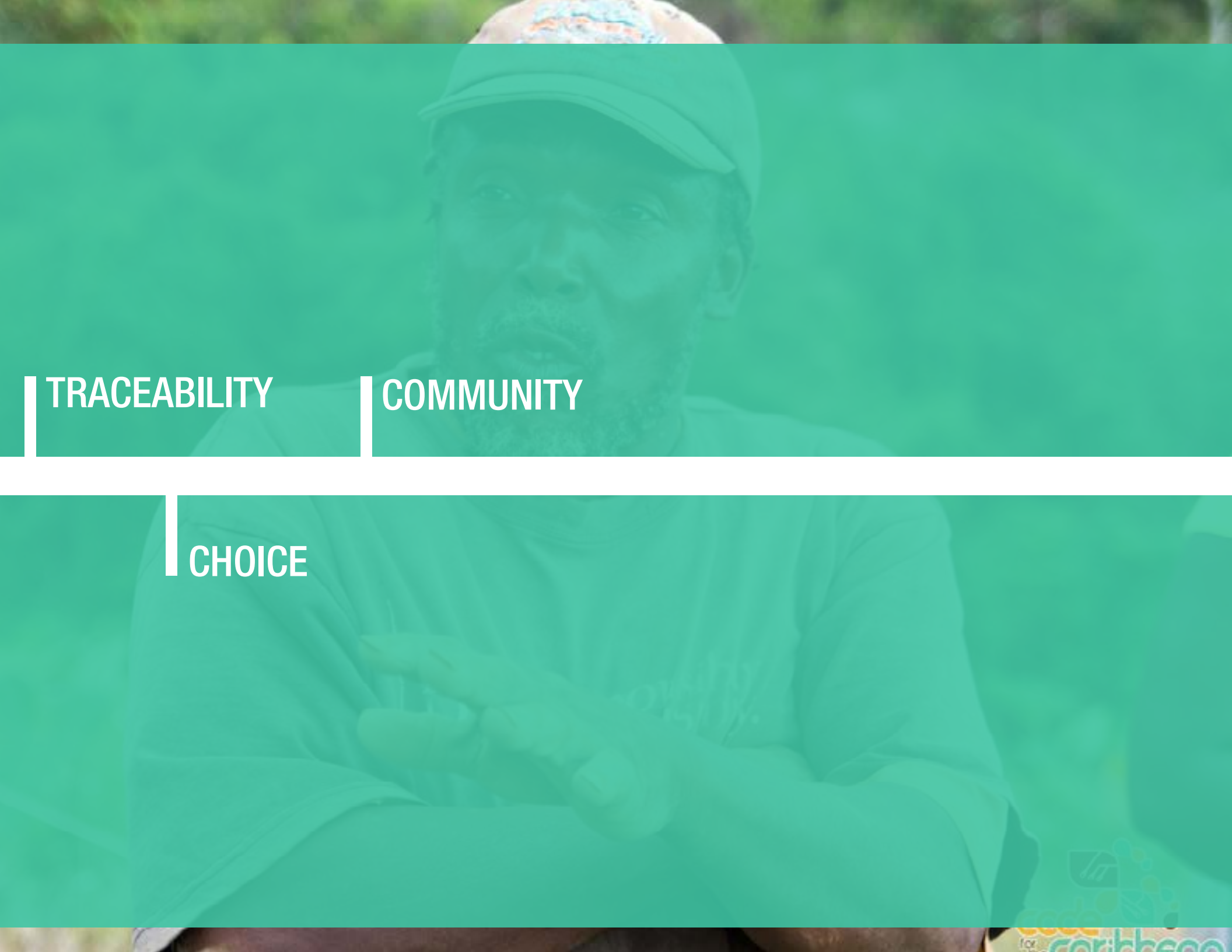
“Hungry man don’t tief food to eat but to sell”

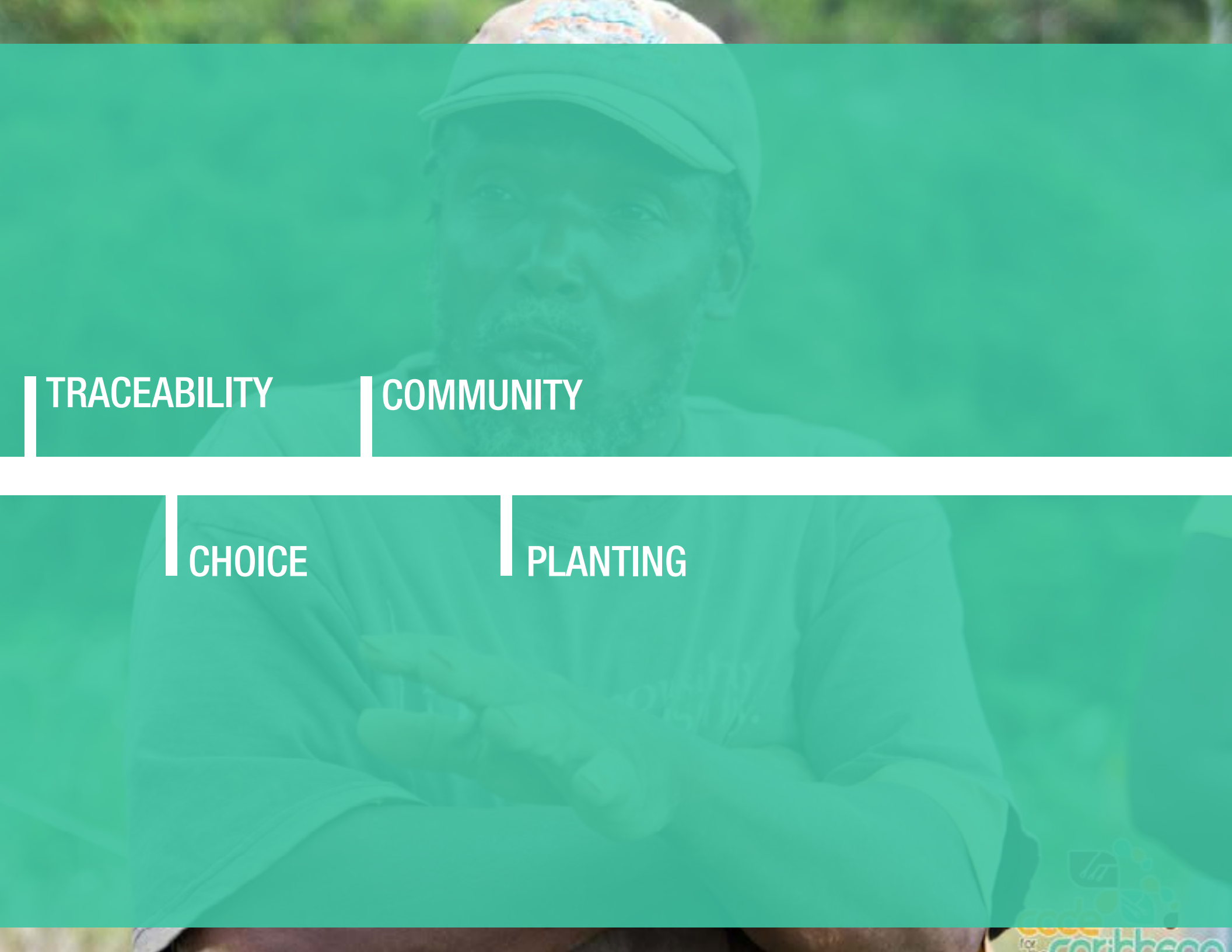
USER EXPERIENCE

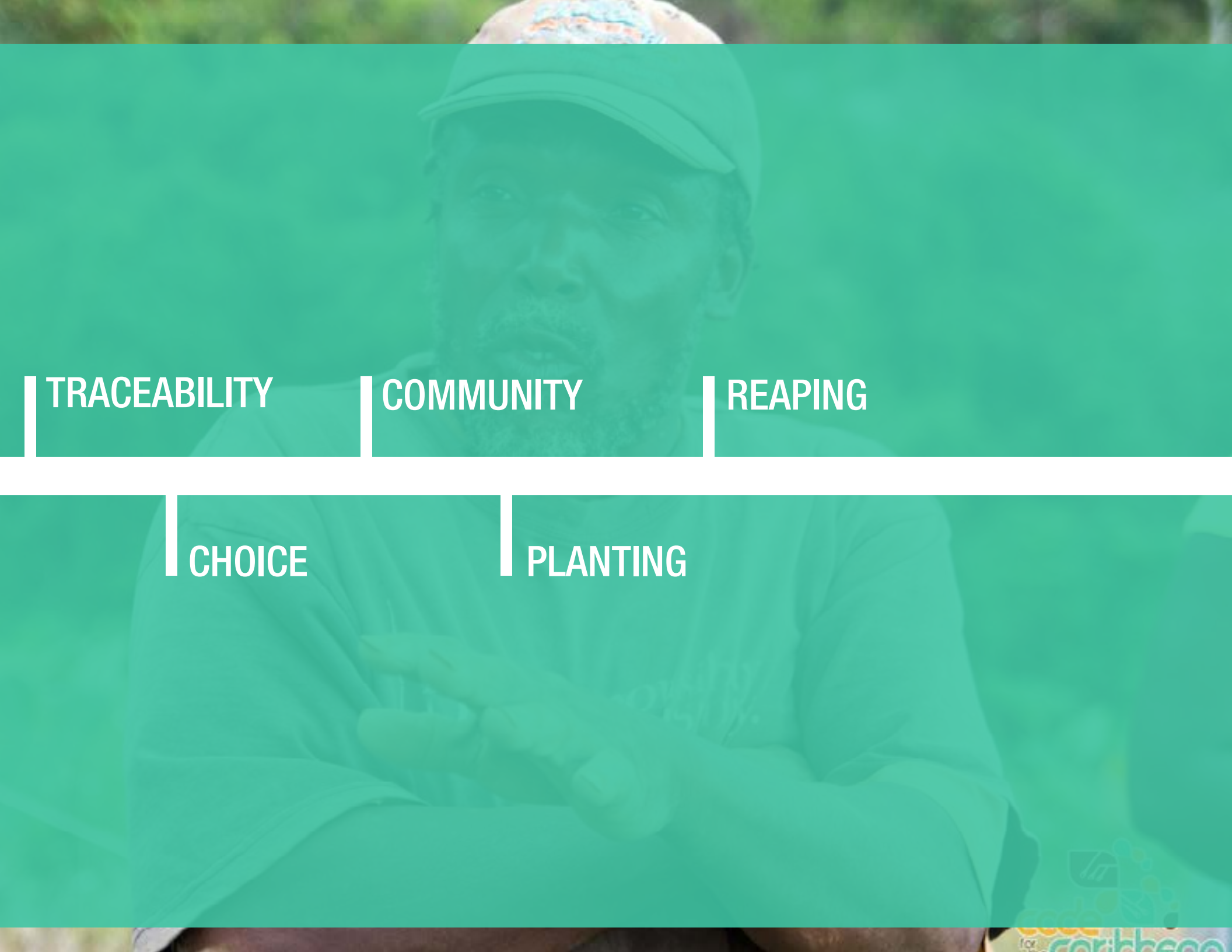
TRACEABILITY

TRACEABILITY

CHOICE


TRACEABILITY
COMMUNITY
CHOICE


TRACEABILITY
COMMUNITY
CHOICE
PLANTING


TRACEABILITY
COMMUNITY
REAPING
CHOICE
PLANTING

TRACEABILITY
COMMUNITY
REAPING
CHOICE
PLANTING
RADA TECHNOLOGY &
EXTENSION SUPPORT

TRACEABILITY

OBSERVATIONS

- Things were so bad in St. Thomas that farmers were being shot by thieves. The police decided to make a targeted attempt at reducing the incidents of praedial larcey.
- The Receipt Book was the main tool used by police to investigate and prosecute instances of PL which led to a reduction in St. Thomas.
- At times police use their own resources to call and cross check JAS receipts.
- Some farmers do not use the receipt book because they find it too complicated.
- Some large farms do not use JAS receipt books.
- The receipt book system currently doesn't track middlemen.

“Calling PC (Police Control) is so hectic”

Design Concepts

- SMS Receipt Book tracker to allow persons to easily retrieve farmer information for verification at eg. at vehicular checkpoint and abattoirs. This is done simply by texting in a receipt book number to pull the relevant farmer details.

- Support JAS Receipt Book system through ABIS, to be able to search sales of receipt book by parish, district etc.

Compose SMS

SMS is sent to designated # with receipt no.of farmer

SMS response from server

SMS responds with farmers details based on receipt number sent. Information will include; **farmers name, address,** regestered/verified status and crops farmer registered to grow.

CHOICE

Why do people decide to become farmers?

OBSERVATIONS

- Some farmers farm and fish because of the independence it gives.
- Some farmers are proud people, and having a photo ID legitimizes them. When the farmer registration process goes poorly, it starts the relationship with RADA on the wrong foot.
- Many extension officers find themselves connected to the soil and a love for animals.
- Registration can be motivated by handouts(some political, or linked to donors) and other benefits.
- Not as many young people are farming these days.

“Some people register as a farmer just to receive handouts”

Design Concepts

- Reaffirm organizational importance of farmer registration and empower Extension Officers to uphold standards and enforce benefits around eligibility to deter false farmer registration.
- Develop a registration management system to support RADA Extension Officers to better manage the registration and validation process for farmers.
- Build greater appreciation of farming and its effect on economic growth through sharing success stories from farmers. Eg. weekly/ monthly media coverage that interviews successful farmers.

COMMUNITY

OBSERVATIONS

- Many farmers experience less of a threat from Praedial Larceny when they have a good relationship within the community.
- Large organizations prefer to give benefits and donations to farmers within farm groups.
- Due to extension officers limited resources, they use farmers groups, which provides a strong conduit to engage multiple farmers and give training.
- Thieves are known members in the community and feel an entitlement to produce/livestock.
- Many farmers want easier access to reduced rate of farming tools and products. "The same tractor ploughs all of the farmers' land in the community."
- The quality of engagement around groups vary, and the benefits of being a member is not always clear to farmers.
- Some farms allow farmers in the community to set up small farms along the perimeter of the property. This creates a buffer and alert system to protect against Praedial Larceny.

“When I reap potato, everyone from the community gets potato and the same with work.”

Design Concepts

- Develop communication strategies and incentives on how to form effective and organised farmer groups by learning from successful groups.
- Enable ABIS to better manage and track information about farmer groups in formalizing and scaling engagement with them.
- Identify and formalize the best practices of the Extension Officer and Farmer groups that has produced effective extension support. Introduce this into other groups settings.
- Use of technological tool to facilitate a transparent “partner system” where farmers can save towards their needs such as an irrigation system, greenhouse, chemicals, etc. This concept may partner with a stakeholder or credit union.

PLANTING

OBSERVATIONS

- Some farmers will go ahead and plant whatever grows best on their land based on, water availability & experience.
- Some farmers that have closer relations with their Extension Officers, received more frequent recommendations and technical advice.
- Many farmers want to produce cash crops however, lack of water prohibits.
- Some farmers make informed decisions. “When there is a glut; I plant that crop”

“I send my wife to the market to see what is selling and then I’ll plant that”

Design Concepts

- Offer farmers more tools and avenues to aid in informed decision making around what to plant and where to sell, based on supply and demand statistics.
- Leverage extension officer tablets to give better access to agricultural information from both Jamaica Agricultural MIS (JAMIS) (price/demand) and ABIS(production/supply) datasets in order to improve extension support.
- Targeted SMS Notification or voice Asterisk server that allows for customized messages to be sent to specific groups of farmers based on farmer attributes.

REAPING/MARKET

OBSERVATIONS

- Some farmers indicated that Praedial Larceny is not their number 1 issue, but that finding a marketplace to sell their goods is.
- Praedial Larceny occurs more during high demand for crops.
- Stolen crops/livestock are sold at a much cheaper rate by thieves than legitimate goods.
- Unsafe produce currently ends up in the market.
- Trinidad has wholesale markets while Jamaica doesn't have a full time wholesale market. Their price information system, National Agricultural Market Information System (NAMIS), is updated daily.

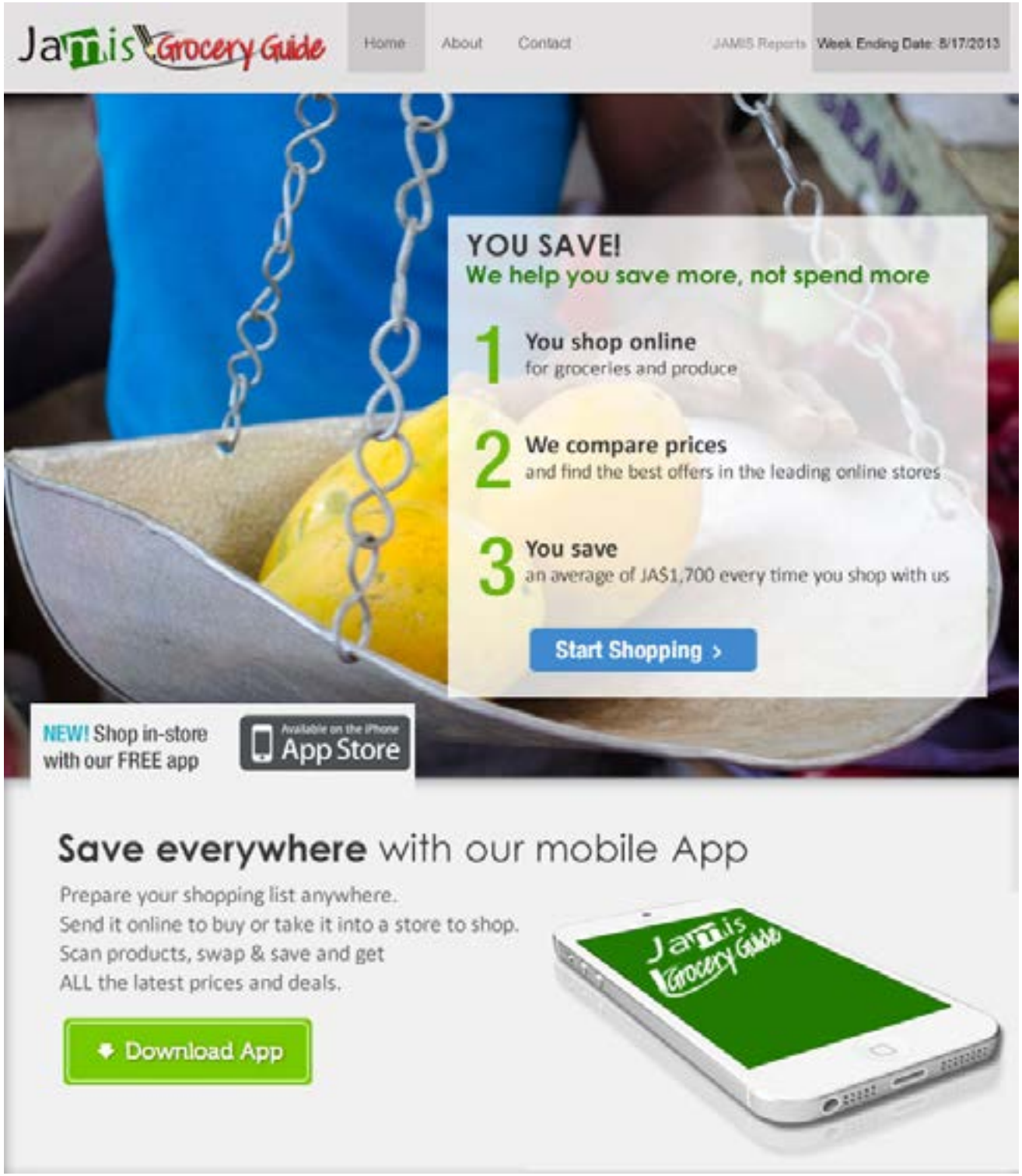
“Because produce will spoil and I have already paid for transport to the market, I have to sell for whatever price I get, and vendor knows this.”

Design Concepts

- An opportunity exists for public/private sector to introduce a verified-only centralized wholesale marketplace (by produce) through farmers groups, coops, etc. for each parish. This can start as a pilot project to have a wholesale day in an existing Parish marketplace.

- Develop an application programming interface(API) to leverage JAMIS(price) data and other data sources to inform specific cross sections of farmers on what may be lucrative crops to plant.

Redesign of link with JAMIS + ABIS



Jamis Grocery Guide

Search | SHOPPING LIST

Sign in | Register

Shopping | Trolley | Delivery

My Favs | Dietary & Lifestyle | Fruits | Bakery | Vegetables | Spices | Produce | Legumes

FRUIT (114)

Total: JA$15,000.00 | Cashback: JA$500.00

JA$0.00

View Trolley >

Any Fruit

- Bananas (10)
- Watermelon (21)
- Pineapple (12)
- Sorrel (5)
- Cantaloupe (18)
- Tangerine (20)

Any Brand

- Chiquita (13)
- Local (9)
- Imported (3)
- Farm Fresh (13)

AnyLifestyle

- Organic (3)
- Fairtrade (2)

Tangerines (250g)

JA$250 (70/lb)

ADD TO TROLLEY

Sweet cup (250g)

JA$250 (70/lb)

ADD TO TROLLEY

Pineapples (250g)

JA$250 (70/lb)

ADD TO TROLLEY

Tangerines (250g)

JA$250 (70/lb)

ADD TO TROLLEY

Sweet cup (250g)

JA$250 (70/lb)

ADD TO TROLLEY

Pineapples (250g)

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Sweet cup (250g)

JA$250 (70/lb)

ADD TO TROLLEY

Pineapples (250g)

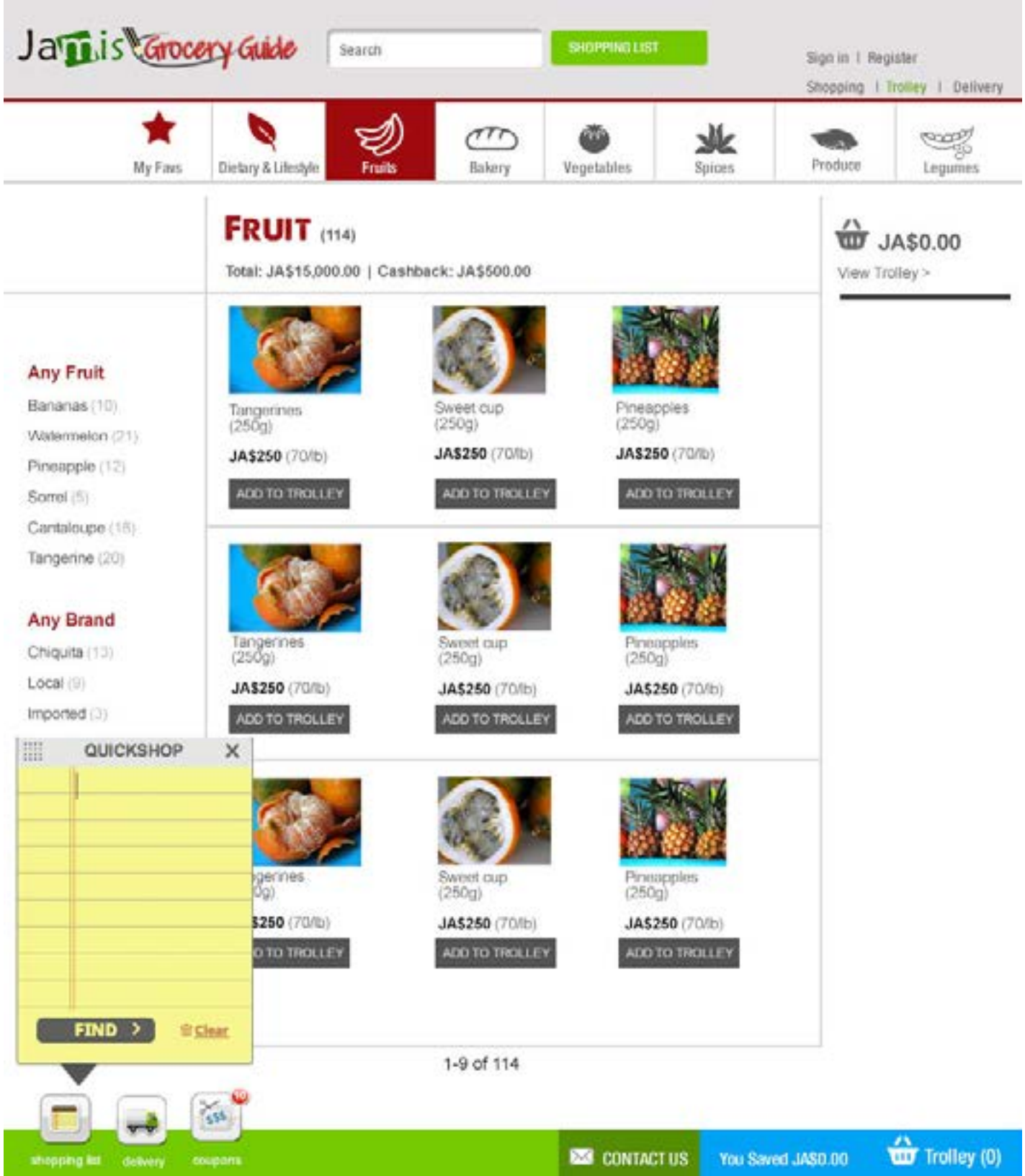
JA$250 (70/lb)

ADD TO TROLLEY

1-9 of 114

shopping list | delivery | coupons

CONTACT US | You Saved JA$0.00 | Trolley (0)


Jamis Grocery Guide
Search
SHOPPING LIST
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FRUIT (114)
Total: JA$15,000.00 | Cashback: JA$500.00
JA$0.00
View Trolley >
Any Fruit
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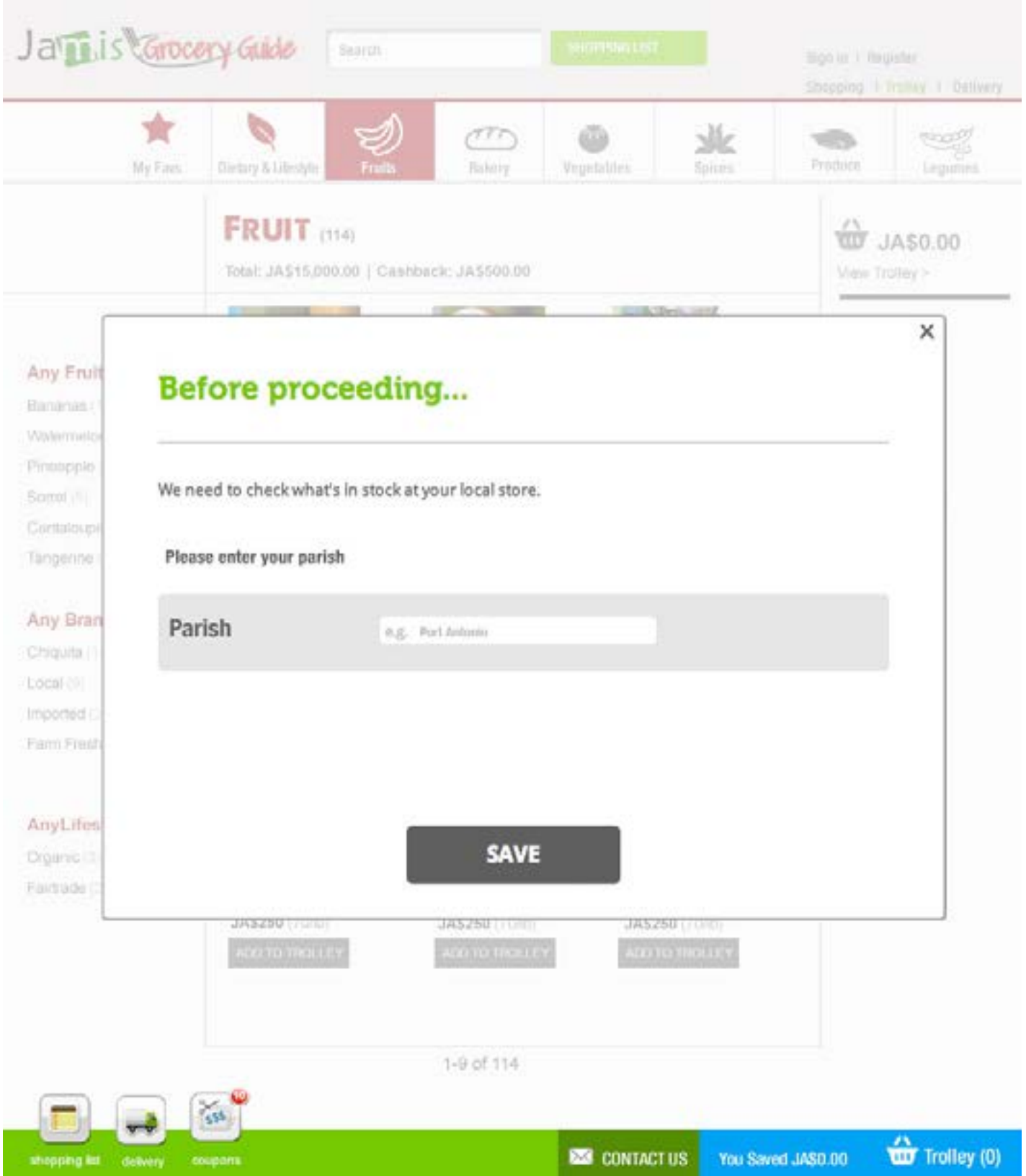
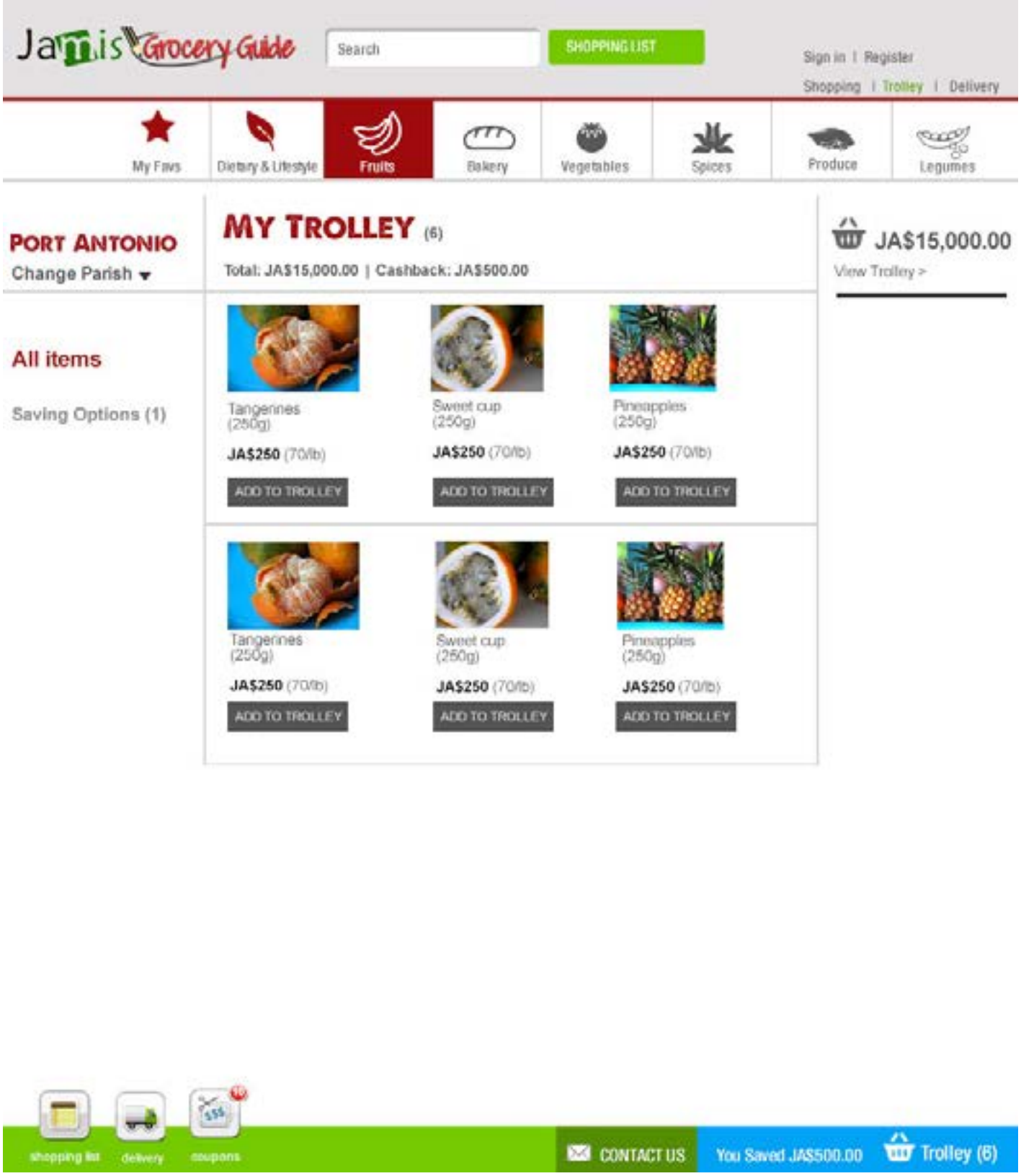
Local (9)
Imported (3)
Tangerines (250g)
Sweet cup (250g)
Pineapples (250g)
JA$250 (70/lb)
ADD TO TROLLEY
QUICKSHOP
FIND >
Clear
1-9 of 114
shopping list
delivery
coupons
CONTACT US
You Saved JA$0.00
Trolley (0)


Jamaica Grocery Guide
Search
SHOPPING LIST
Sign in | Register
Shopping | Trolley | Delivery
My Favs
Dietary & Lifestyle
Fruits
Bakery
Vegetables
Spices
Produce
Legumes
FRUIT (114)
Total: JA$15,000.00 | Cashback: JA$500.00
JA$0.00
View Trolley >
Before proceeding...
We need to check what's in stock at your local store.
Please enter your parish
Parish
e.g. Port Antonio
SAVE
ADD TO TROLLEY
1-9 of 114
shopping list
delivery
coupons
CONTACT US
You Saved JA$0.00
Trolley (0)


Jamis Grocery Guide
Search
SHOPPING LIST
Sign in | Register
Shopping | Trolley | Delivery
My Favs
Dietary & Lifestyle
Fruits
Bakery
Vegetables
Spices
Produce
Legumes
PORT ANTONIO
Change Parish
MY TROLLEY (6)
Total: JA$15,000.00 | Cashback: JA$500.00
JA$15,000.00
View Trolley >
All items
Saving Options (1)
Tangerines (250g)
JA$250 (70/lb)
ADD TO TROLLEY
Sweet cup (250g)
JA$250 (70/lb)
ADD TO TROLLEY
Pineapples (250g)
JA$250 (70/lb)
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ADD TO TROLLEY
shopping list
delivery
coupons
CONTACT US
You Saved JA$500.00
Trolley (6)

RADA TECHNOLOGY & EXTENSION SUPPORT

OBSERVATIONS

- Many Extention Officer's face an uphill challenge to interact with all of their farmers.
- The average extension officer has 1390 farmers in their district, some might have 2500.
- Many Extension Officer's say that they use their tablets daily, however have issues trying to use ABIS.
- ABIS is not mobile optimized and this causes issues in the field.
- Tablets experienced internet issues in the field.

“From I reach the farm, the internet drops. Sometimes even before that.”

Design Concepts

- Mobile optimized version of ABIS operates without an internet connection and syncs with main database upon internet connection.

  APP will enable - farmers registration
  verification and validatation of data
  Data collection in the field
  Access to price data and trends

- A method of creating a weighted trust network of RADA Extension Officers and farmers through which farmers can update RADA with unverified farm information by using trusted communication channels.

APPS
WIDGETS
MY APPS
SHOP
10: 16

ABIS Administration
Please log in and get full access
password
log in
10: 16

	IMPACT (0 - 5)	**COST** (0 - 5)	**FEASIBILTY** (0 - 5)	**TOTAL**
Offline Tablet				
Retrieve info by SMS				
Farmer Group Support				
Agriculture API from JAMIS + ABIS data				
Wholesale Market Pilot				
Inform farmers on what to plant				

QUESTIONS?

HOW MAY WE PRIORITISE THE FOCUS OF THE REST OF THE PROGRAMME?

CONTACT US

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