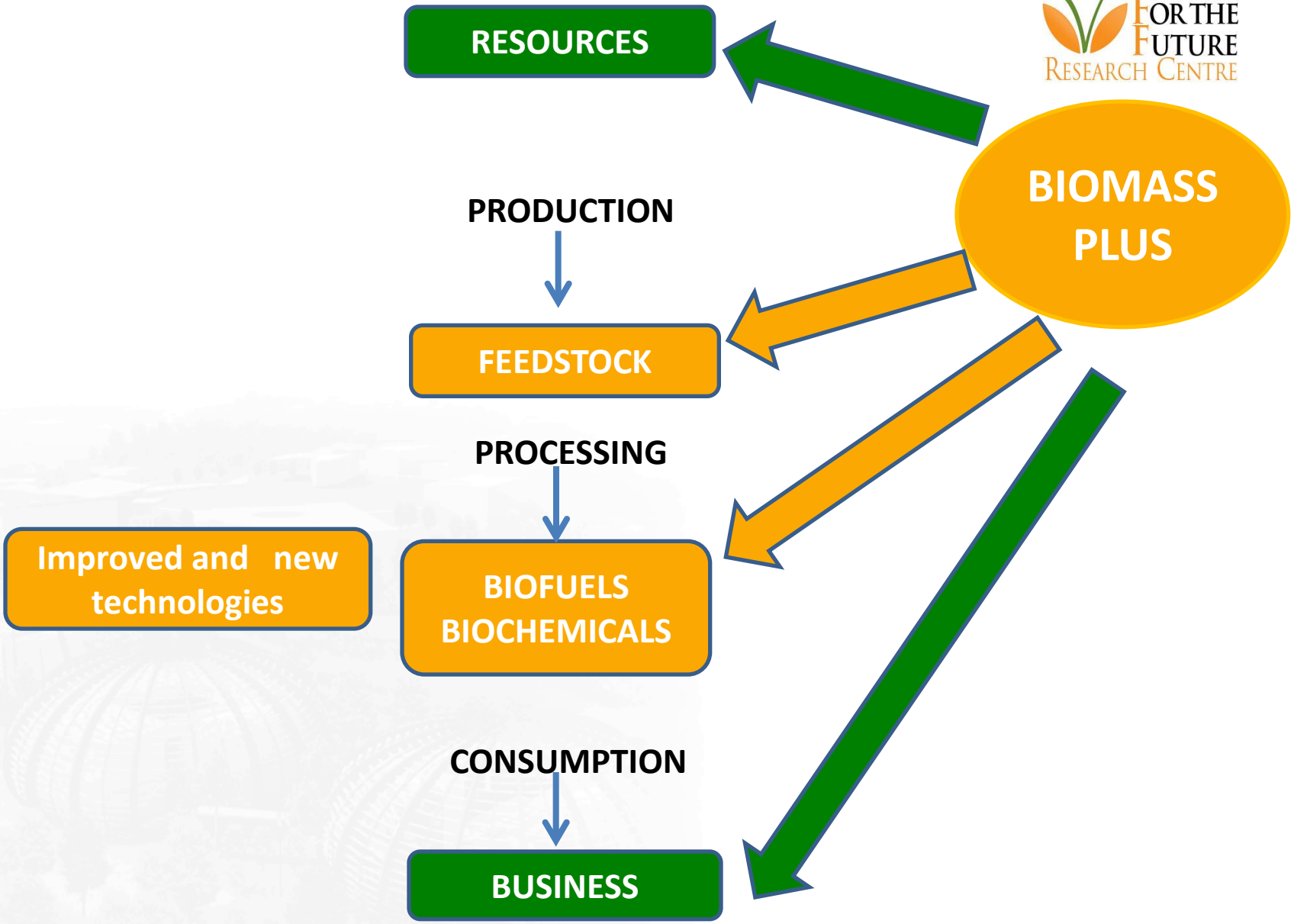
BiomassPLUS

13 December 2012

Debbie Sparkes

Biofuels – from feedstock to end use



Resource use within OP plantations

Funded studentships from Round 1

Review of resource use efficiency in oil palm. Debbie Sparkes/Ajit Singh

Objectives:

- Review the current literature on radiation use efficiency, nutrient use efficiency and water use efficiency of oil palm.
- To understand genetic diversity in resource use efficiency traits.
- To inform future research projects looking at intercropping of underutilised species with oil palm to maximise biomass production per unit area.

Novel trait discovery for improved biomass production in underutilised crops. Erik Murchie/Festo Massawe

Objectives:

- Identify key groups of underutilised crop species with potential for high biomass production
- Screen the species identified for photosynthesis and potential biomass productivity (including photosynthetic efficiency, canopy light interception and resource use efficiency (water, nitrogen).
- Test a subset of promising species in rigorous field level studies.

Funded studentships from Round 1

Application of vegetation indices (VIs) for rapid crop screening. Mike Steven, Lawal Billa, Thuy Tuong

Objectives:

- Establish relationships between spectral measurements and agronomic parameters for a range of underutilised crops.
- To test vegetation indices for robustness in a range of underutilised crops.
- Investigate adaptation of the techniques to environments with partial shade.
- Apply canopy modelling approaches to generalise findings. The anticipated outcome is a fully-evaluated, robust screening tool.

Unmanned Aerial Vehicles (UAV) mapping of intercropping systems. Thuy Tuong, Tomas Maul

Objectives:

- To design and develop a low-cost UAV system for monitoring and management in intercrops.
- Development will focus on setting and mounting a suitable sensor and developing image analysis solution for UAV image product.

Funded studentships from Round 1

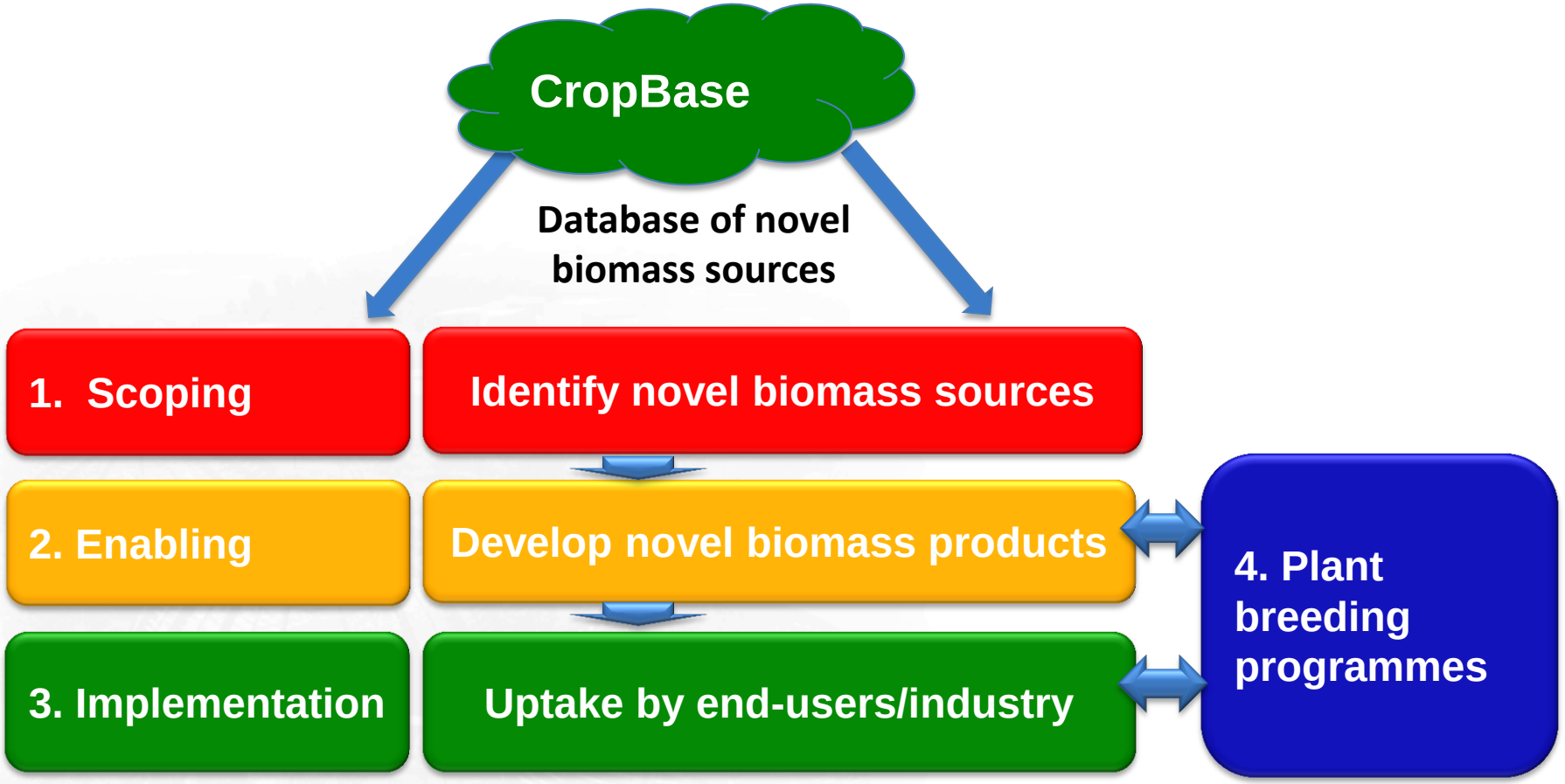
Carbon cycling in underutilised crops and novel cropping systems. Stephanie Evers, Sofie Sjorgersten.

Objectives:

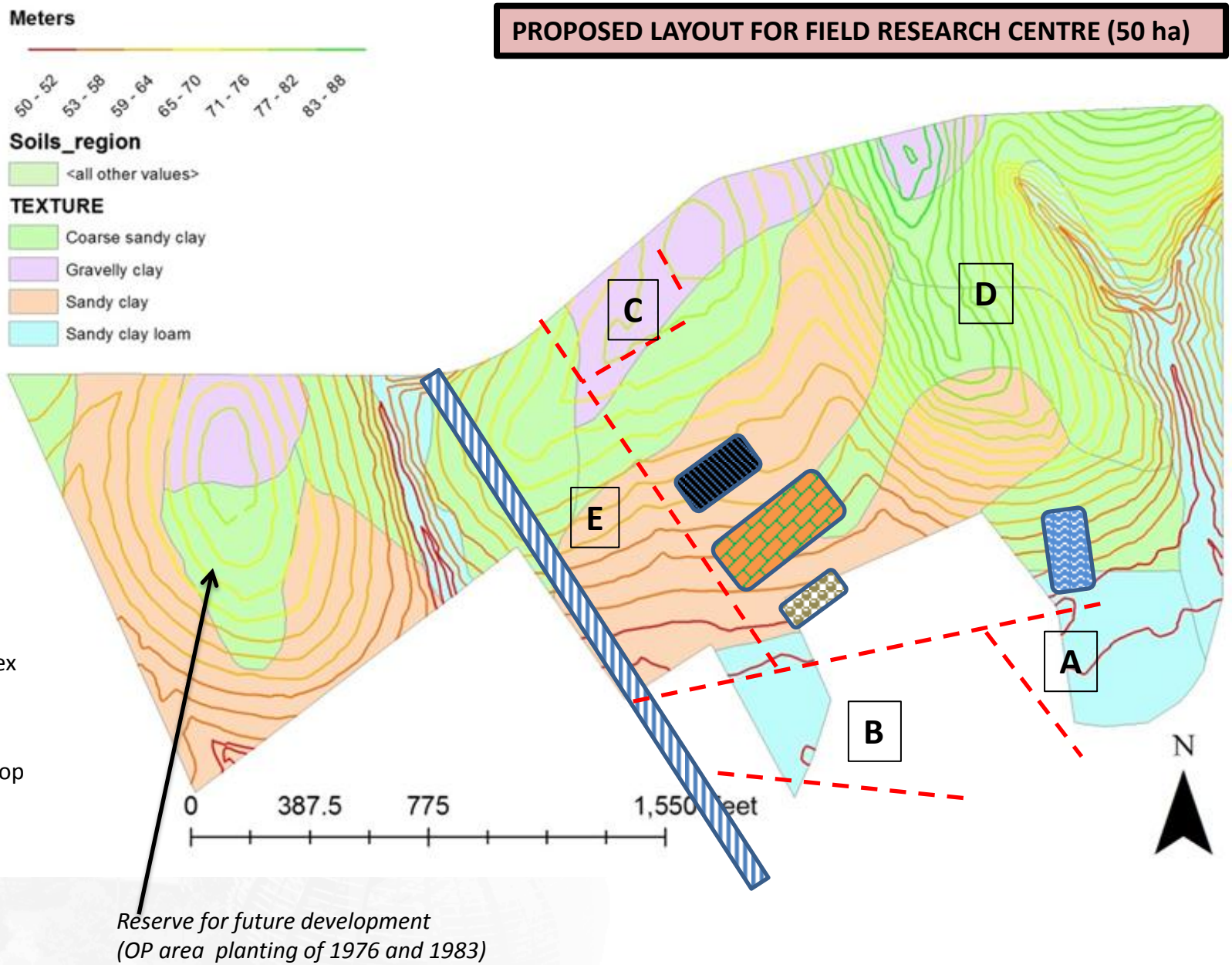
- To examine the extent to which underutilised crops and cropping systems mimic natural carbon cycling in undisturbed tropical forests.
- To compare carbon cycling in oil palm plantations with underutilised crops and intercropping systems.

BiomassPLUS

Programme Structure



PROPOSED LAYOUT FOR FIELD RESEARCH CENTRE (50 ha)



A Fish plus

B Field crops

C Cattle feedlot

D Orchard

E Intercropping area

FRC Office Complex

Poly- tunnel and Rain Shelter Area

Store and Workshop

Reservoir Pond

Pylon corridor

Aim of breakout groups

- Identify gaps in BiomassPLUS programme, not covered by existing funded studentships
- Explore potential collaborations between CFFRC/UNMC and universities/research institutes/industry partners.
- Links between ‘agronomy/agroecology’ and ‘technology’ aspects of BiomassPLUS?
- Identify priority areas for development into projects for Round 2
- Identify priority crops for research
- Discuss potential funding for new projects (beyond CFFRCPlus)