

# CO2CO: A CLIMATE-SMART AGROFOREST PARK USING NATURE BASED DESIGN IN SIARGAO'S CLIMATE FIELD SCHOOL

The agriculture sector accounts for 30% of the Philippines' greenhouse gas (GHG) emissions. These emissions which mainly consist of carbon, contribute to the earth's warming, consequently causing more erratic weather events. Agroforestry is a land-use system that integrates trees and shrubs with the agricultural practice. This method of farming has shown promising results with regards to climate change mitigation which include carbon sequestration and reduced emissions. However, the majority of agricultural practice relies on monocropping which is susceptible to climate change and its hazards among others. There is opportunity for mass adoption of agroforestry, but there is a need for a proper educational space for our farmers to learn, develop, cultivate their own practice of climate resilient farming. Using a framework of nature-based solutions for agriculture, climate-smart strategies, and carbon neutral agriculture, the project aims to create an agro-educational space that builds climate resilience in the community. The agroforest complex, integrated with the development of Siargao's Climate Field School for Farmers and Fisherfolk will provide spaces for demonstration, exchange of ideas, and economic opportunities for the local community and the island as a whole. We are in a climate crisis, and we not only need to reduce emissions but also build resilience especially among our most vulnerable communities.



## LOCATION MAP



## SITE INVENTORY AND ANALYSIS

### POLITICAL



- GLOBAL REDUCTION OF GHG EMISSIONS BY 75% BY 2030 (CCC)
- PEOPLE'S SURVIVAL FUND (RA 10174)
- CLIMATE FINANCING FOR LGUS

### PESTLE ANALYSIS

#### ECONOMY



- PH IS AGRICULTURE DOMINATED
- POST-PANDEMIC RECOVERY
- SIARGAO LIVES OF FISHING & COCONUT (ASIDE FROM TOURISM)

#### SOCIAL



- 1/2 OF HOUSEHOLDS DOMINATED POOR
- DEL CARMEN HAS 16% OF 110,000 POPULATION
- ABOVE AVERAGE POP. GROWTH

#### TECHNOLOGICAL



- ADOPTION OF DIGITAL AGRICULTURE, ECOMMERCE
- DRONE TECH & SATELLITE IMAGERY
- URBAN AGRICULTURE (GREEN TECHNOLOGIES)

#### ENVIRONMENTAL



- POST-ODETTE RECOVERY & REHAB PROTECTED UNDER SIPLAS
- CLIMATE RESILIENCE BUILDING

#### LAWS

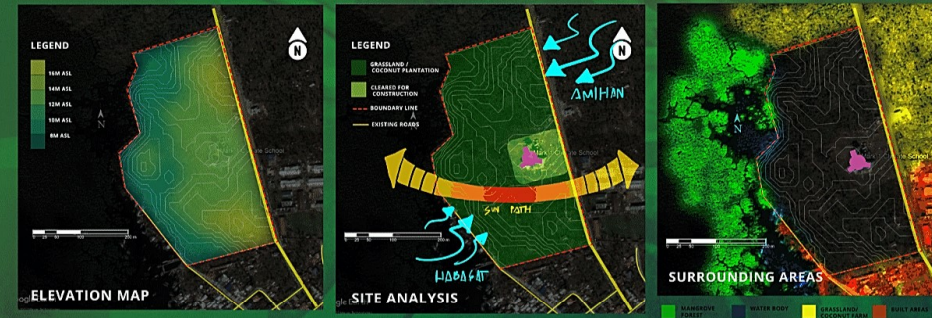


- NIPAS ACT 1992 - SIARGAO AS PROTECTED LANDSCAPE
- SIPLAS RESOURCE MANAGEMENT PLAN
- LACK OF AGROFORESTRY DRIVEN POLICY (PHILIPPINE AGRO FORESTRY ACT OF 2010)

## SWOT ANALYSIS

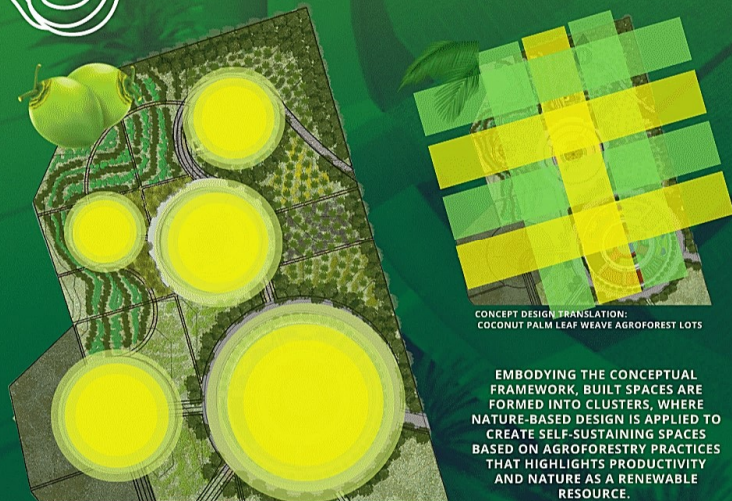


## SATELLITE IMAGERY



## DESIGN CONCEPT: COCO

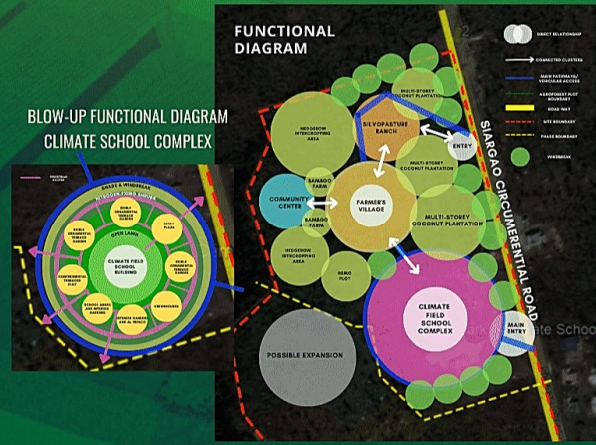
THE COCONUT IS THE ISLAND'S MAIN CROP WITH OVER 80% OF ITS AGRICULTURAL SPACE DEVOTED TO THE TREE CROP. THE DESIGN NOT ONLY BUILDS UPON THE EXISTING COCONUT PLANTATION, BUT THE COCONUT IN ITS VARIOUS FORMS AND FUNCTION ARE TRANSLATED INTO THE SITE.



CONCEPT DESIGN TRANSLATION: COCONUT PALM LEAF WEAVE AGROFOREST LOTS

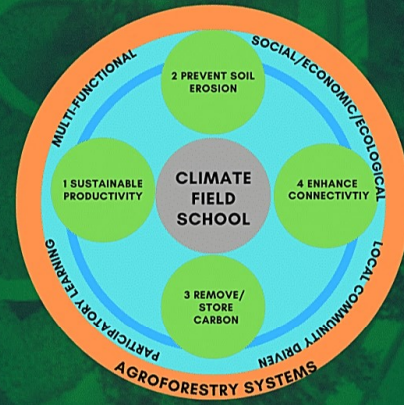
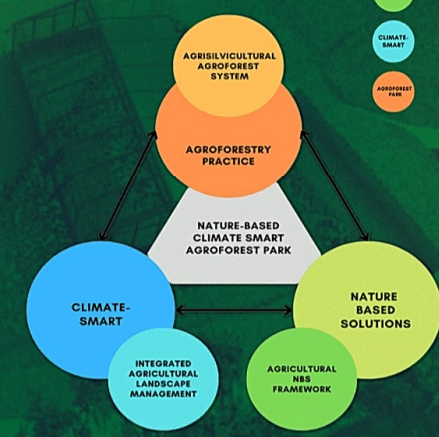
EMBODYING THE CONCEPTUAL FRAMEWORK, BUILT SPACES ARE FORMED INTO CLUSTERS, WHERE NATURE-BASED DESIGN IS APPLIED TO CREATE SELF-SUSTAINING SPACES BASED ON AGROFORESTRY PRACTICES THAT HIGHLIGHTS PRODUCTIVITY AND NATURE AS A RENEWABLE RESOURCE.

CONCEPT DESIGN TRANSLATION: COCONUT CLUSTERS



## FUNCTIONAL DIAGRAMS

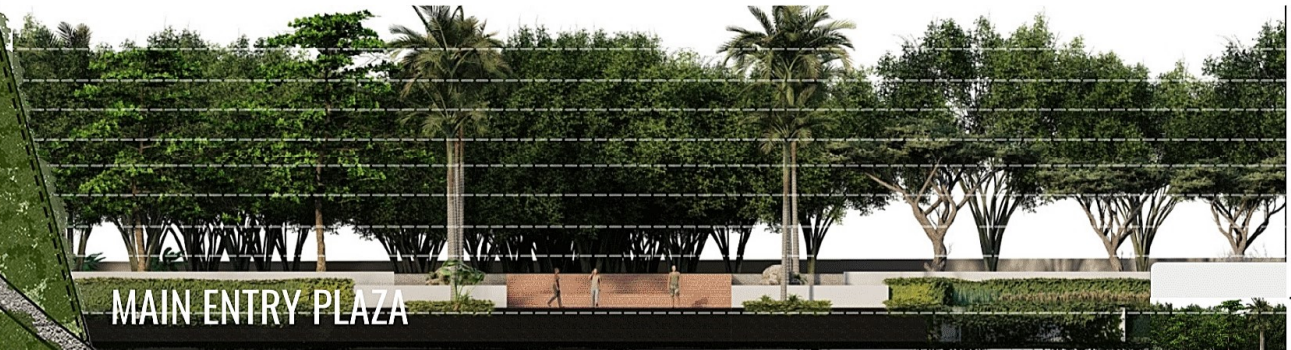
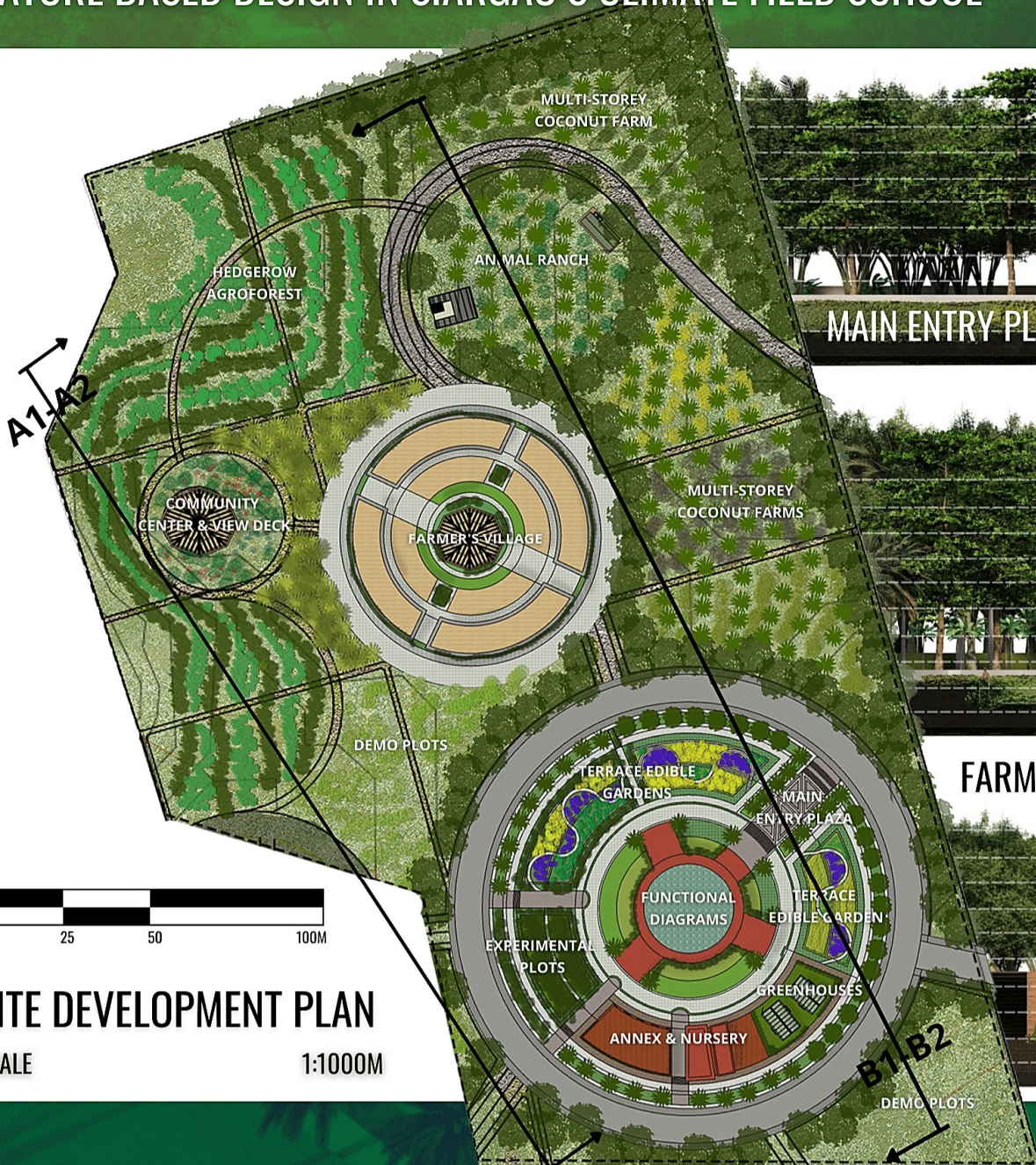
## NATURE-BASED CLIMATE SMART AGROFOREST PARK THEORETICAL FRAMEWORK



## CONCEPTUAL FRAMEWORK



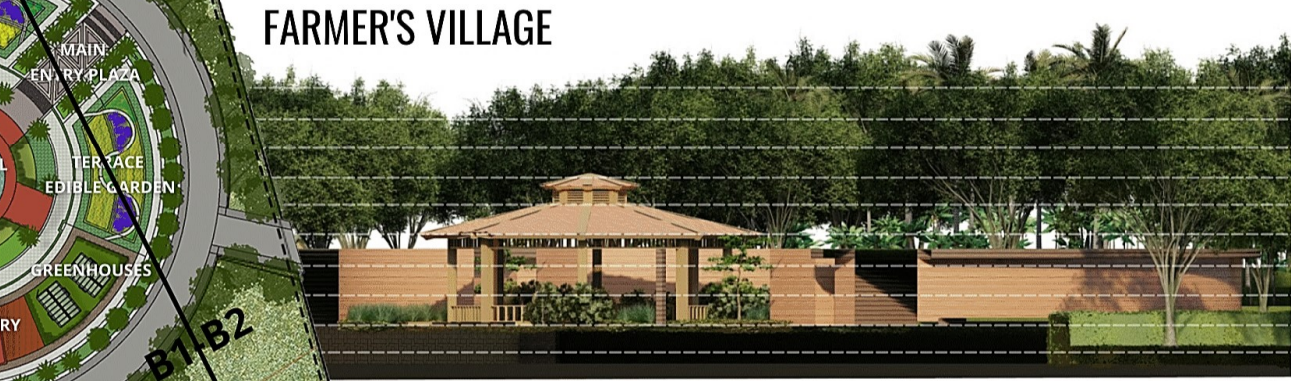
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24  
22  
20  
18  
16  
14  
12M



24  
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12M



24  
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12M



12M

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- RENSONII**  
*DESMODIUM RENSONII*
- FLEMINGIA**  
*FLEMINGIA MACROPHYLLA*
- HERBAL IPIL IPIL**  
*LEUCARBA LEUCOCYPHATA*
- KAKAWATE**  
*GLYRICHIZA SEPIUM*
- NAPIER**  
*PERNISSETUM BURPUREUM*
- VETIVER GRASS**  
*VETIVERIA ZIZANOIDES*
- GUINEA GRASS**  
*Panicum polyanthum*

### FODDER AND EROSION CONTROL

- COCONUT**  
*COCOS NUCIFERA*
- COFFEE**  
*COFFEA CANEPHORA*
- BANANA**  
*MUSA ACUMINATA*
- PINEAPPLE**  
*ANANAS COMOSUS*

### MULTI-STOREY INTERCROPPING

- PAPAYA**  
*CARICA PAPAYA*
- CACAO**  
*THEOBROMA CACAO*
- TOMATO**  
*SOLANUM ESCULENTICUM*

### NATIVE TREE COMPONENTS

- BITAOG**  
*CALEOPHYLUM INDIANUM*
- KAMAGONG**  
*DIOSPYRUS BEANCOI*
- KATMON**  
*DILLENA PHILIPPINENSIS*
- PILI**  
*CANARIUM OVATUM*
- TALISAY**  
*TERMINALIA CATAPPA*
- MOLAVE**  
*VITEX PARVIFLORA*
- BANI**  
*MILLETTIA PINNATA*

### EDIBLE GARDEN

- RICE**  
*ORYZA SATIVA*
- OKRA**  
*ABELMOSCHUS ESCULENTUS*
- BASIL**  
*OCIMUM BASILICUM*
- STEVIA**  
*STEVIA REBAUDIANA*
- LETTUCE**  
*LACTUCA SATIVA*
- LEMON GRASS**  
*CYMBOPOGON CITRATUS*
- MINT**  
*MENTHA*

## AERIAL PERSPECTIVE



MAIN ENTRY PLAZA



TERRACED EDIBLE GARDEN



FARMER'S VILLAGE