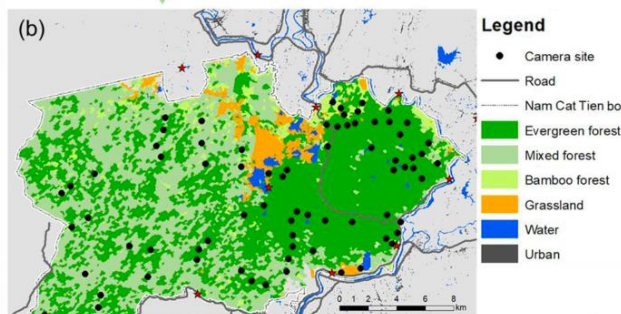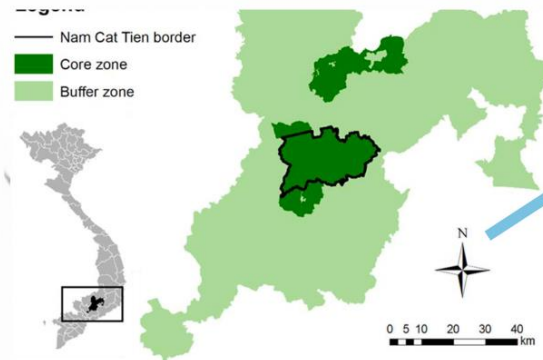# WACA - RAINWATER COLLECTION AND EFFICIENT WATER USE EDUCATION AT BIOSPHERE RESERVE IN CAT TIEN NATIONAL PARK

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Groovin' Green, Living Clean!

PROPOSAL FRAMEWORK
1. THE BIG IDEA
1. Project context
Over the past decade, Vinh Cuu district, Dong Nai Province, Vietnam - in the biosphere reserve area of the Nature Reserve, Cat Tien National Park, has experienced a severe drought situation. Due to the impact of the El Nino phenomenon, high temperatures, and prolonged drought, there has been a shortage of water for daily life of about 200 households in the area. Especially in areas of hamlets 4, 5, 6 - Ma Da commune, from March to May every year.

2. Project goals
Local communities can improve their self-reliance and ability to adapt to extreme weather conditions brought on by climate change, such as droughts and natural disasters, by effectively utilizing and protecting water sources.

- Detail goal:
    + Collect 30% of average rainwater during the rainy season.
    + Reduce domestic water costs by 40% for participating households.

3. Methods and approaches
Phase 1: Preparation
- Established page media channel and Facebook platform community group
- Survey the actual needs and conditions of 60 households.
- Recruit 3 volunteers to serve logistics and create media publications
- Search and purchase installation material sources
- Plan to maximize households' journeys by hamlet

Phase 2: Installation and education on model usage

- Choose a design suitable for each household with different areas and roofs
- Construction and installation of rainwater collection models.
- Instruct households to use and maintain the model.
- Organize a model installation session combined with training on economical water use for children and people

Phase 3: Monitor and evaluate:

- Analyze data collected using Google my map, Google Earth Engine, Weather.io and excel to evaluate project impact and make necessary improvements.
- Compare and evaluate the effectiveness of the quality and quantity of rainwater collected by the entire household compared to other models
- Use the Online form to collect feedback from people on the use of water filtration models and water-saving education methods.

4. Impact of the project

- 60 households with 250 people learned about how to collect rainwater and take measures to prevent drought
- Saved 20,000 m3 of water and water cost about 40 million VND/year ~ 1700 USD
- 10 media publications to inspire water conservation across platforms
- Images and regional data for 2 scientific research articles

2. THE PILOT

1. The Pilot Project

Based on the survey results with the selected households, determine the appropriate installation location for each rainwater collection model. Organized a training session for 20 households and others on how to use, operate, and maintain effective rainwater collection systems.
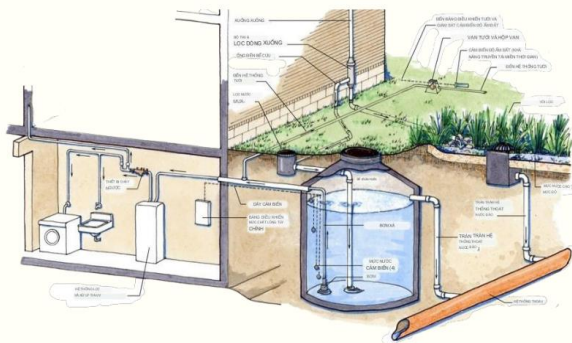
- Rainwater catchment area:
- Roof area: 38m x 9.9m = 376.2 m²
- Flow coefficient for concrete surface: 0.9
- Average monthly rainfall: Ri = 97.25mm
- Amount of rain collected each year:

Rix A x CT = 97.25 x 12 x 376.2 x 0.9 = 395,122.86 liters

- Average amount of rain collected per day: 395,122.86 / 365 = 1,082.53 m³

2. Pilot Project Timeline

March - April/ 2024

Week 1: Market Research, Planning, Prepare logistics and humans

Week 2: Building model and introduce instructions for use

Week 3 -5: Complete and evaluate and monitor water quality and models

Week 6: Report and create social post for Project

3. Stakeholder Mapping

1. Local community people
   - 20 target households and 40 households were introduced to rainwater methods.
   - Village heads or representatives of community organizations in hamlets, communes and districts.

2. Project partners:
   - Non-profit organizations (NGOs) and experts, consultants from The Water Agency, UNESCO, Japan
   - Media support channels: FOLDSCOPE Viet Nam, NGUOCInternational, Dai Ngan Cat Tien (facebookpage)

4. Budget Plan

No	Describe	Proposal				Note
		Unit	Quantity	Unit price	Into money	
Pre-stage costs						
1	Gasoline for moving vehicles	motorbike	3	6,09	18,28	Move in 3 directions to take survey samples
2	Entrance ticket	people	3	0,08	0,24	Tickets for students
3	Printing costs	package	1	4,06	4,06	Survey form offline
4	Logistics costs	total	1	22	22	Cost of moving raw materials
Materials for installing a rainwater collection model						
1	Reflective tarpaulin	plate	10	2,23	22,3	
2	Rainwater catchment trough	meters	30	3,25	97,5	On average, each household is 3 meters
3	Plastic water pipes	meters	30	1,02	30,6	
4	Water tank	bin	10	14,21	142,1	200L
5	Filter mesh	grilles	10	3,45	34,5	50×50cm (200mesh)
6	Filter material	package	10	52,8	528	1 package of filter materials includes: + 25kg of activated carbon + 25kg of manganese sand, + 50kg of quartz sand + 50kg of water filter gravel
7	Water tap	faucet	10	1,02	10,2	
7	Gutter	funnel	10	1,22	12,2	
8	Fillter and bump	set	10	7,72	77,2	
Total: 999,18 (USD)						

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