



From Plant Nursery to Furthering the General Welfare: Tabaco City's Use of Vetiver as a Means of Promoting Health, Safety, and Self-Reliance among its Citizens

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Flow of the Presentation

INTRODUCTION

TABACO CITY: A BRIEF
PROFILE

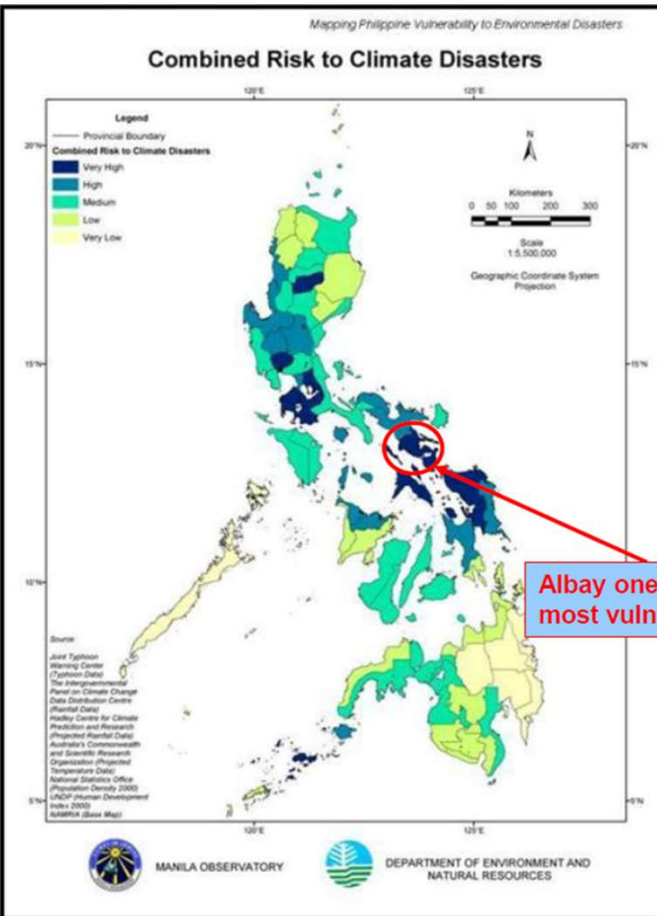
PROJECT SITES: RESULTS
AND DISCUSSION

SOME INSIGHTS

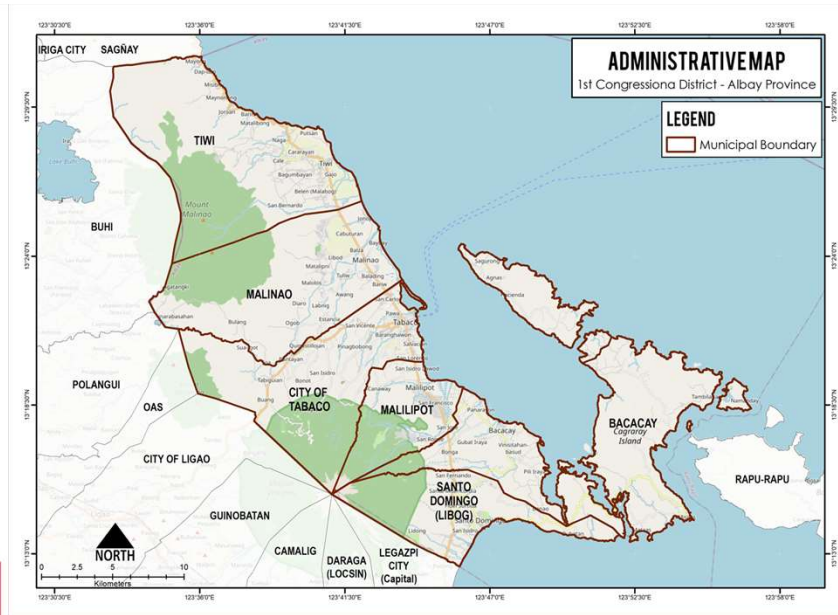
Introduction

- Since the 1990s, many governance functions have been decentralized and downloaded from the central government to its local government units (provinces, cities, towns)
- RA 7160 or the Local Government Code of 1990, emphasizes the duty of local units to promote the GENERAL WELFARE of its citizens (safety, well-being, environmental protection, economic development, resilience)
- Other national laws clearly indicate local governments as the institutions responsible for handling concerns that impact people's welfare such as solid waste management and resilience to extreme events.
- Promoting the general welfare can be a costly enterprise. There is a need for sustainable and cost-effective interventions in addressing environmental and resilience-related concerns.
- Tabaco City in Southeastern Luzon, Philippines is a case of an LGU that has begun to employ vetiver as a cost-effective, sustainable, and replicable tool in pursuing projects that promote the general welfare.





Albay one of the most vulnerable



TABACO CITY

- Located along the southeastern Luzon Philippines
- Faces the Pacific, (Typhoon Belt – 3 to 5 typhoons direct hit per year)
- 136 inches of rain per year
- Predominantly agricultural but with high rate of urbanization
- Urban, Suburban, Upland, and Island Areas

It all started with a problem, a partnership, and a nursery...

- In June 2021, Tabaco City's (TCG) Materials Recovery Facility encountered a leachate problem that polluted its water source.
- Its City Mayor immediately contacted the Central Bicol State University of Agriculture (CBSUA) for assistance whose President promptly responded in kind.
- TCG was given 1000 vetiver slips and purchased an additional 5000 to establish nurseries, while planting vetiver slips along the paths where leachate flowed along its MRF and composting areas.
- Eight months after planting vetiver nurseries and rows along leachate and rain runoff pathways along the city MRF, the water from the facility's faucet returned to its old clear state.
- Not only has the use of vetiver been cost-effective and sustainable. The ever increasing amount of the said grass has allowed the TCG's officials to come up with ways to employ the grass in improving the people's safety and well-being.





Vetiver grasses absorbing leachate and rain run-off from composting windrows (TOP).

Roughly nine months after planting vetiver grasses in strategic areas, the MRF's water has again become clear (RIGHT).



PLANT IT, USE IT, AND IDEAS WILL FOLLOW

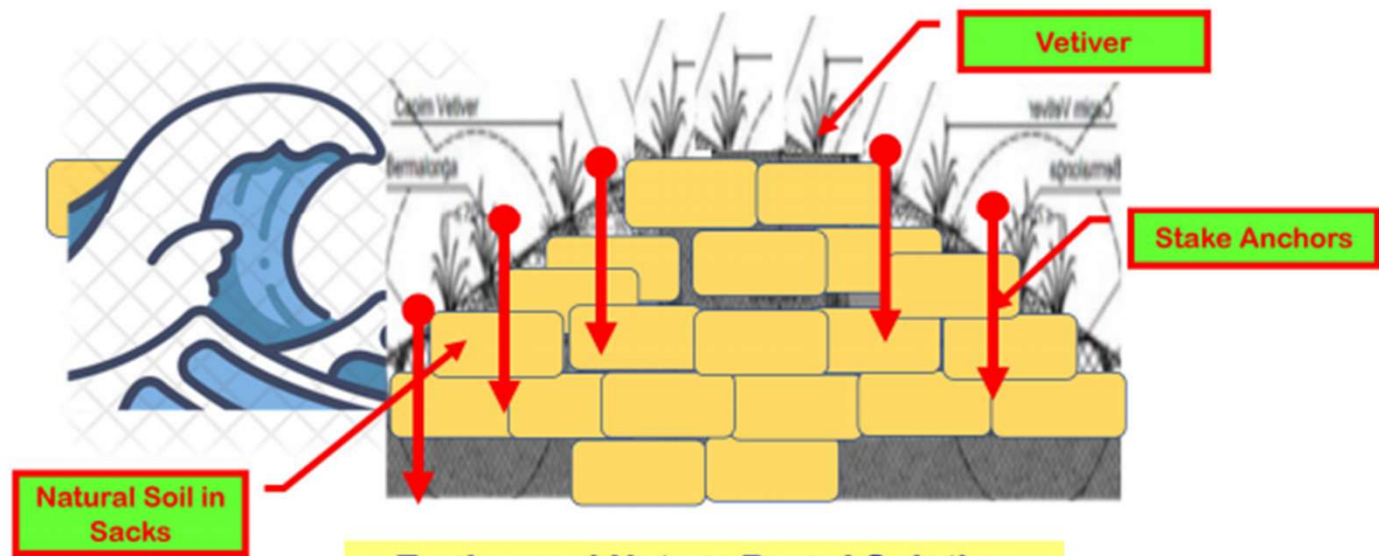
- Through the assistance of outside consultants and their own discussions and reflections, the TCG officials have come up with socio-development projects that promote the safety of its citizens and the protection of the environment.. These include:
- An 80-meter Vetiver Seawall in Quinastillojan, San Miguel Island.
- Vetiver hedges that help treat the overflow of liquid wastes in the treatment facility of the city's sanitary landfill and serves as a perimeter border for its landfill cells.
- An ongoing project to set up vetiver grasses along the perimeter of the septic tanks of the city's transitional social housing site.



VETIVER SEAWALL

- November 2021 meeting between TCG and ASSURE Consultants to explore ways on how communities can be safe from storm surges.
- It was suggested that a mature hedge of vetiver grasses could be a cheaper and more sustainable alternative for making a seawall seawall than using concrete and steel.
- Soon after, an 80-meter long, one meter wide bio-engineered 'test' seawall made of vetiver began to emerge in Sitio Quinastillojan, Brgy. Hacienda in San Miguel Island at 1/10th the cost of a cement and steel seawall.
- The project have the full support of residents, as they now feel safer and more confident of not being adversely affected by future typhoons and storm surges. Some are even hoping that the local government expands the green structure to protect other homes along the coast.
- The seawall also has one constant benefit for residents – the sea's waters no longer enter their homes during high tide.
- RESIDENTS OF A NEARBY COMMUNITY HAVE EVEN CONSTRUCTED THEIR OWN SEAWALL USING ONLY FREE VETIVER SLIPS FROM THE TCG.

Proposed Typical Schematics for Vetiver Reinforced Coastal Berm



Engineered Nature-Based Solution

Figure 7: Typical Scheme for the Proposed Nature-Based Solution

SOURCE: ASSURE CONSULTANTS



Vetiver seawall in Quinastillohan from July to October 2022.

As of February 2023....



Quinastillohan now has a stable 80 meter seawall made up of vetiver hedge grows now as tall as a human being. It now prevents the high tide waters from reaching the homes of coastal dwellers.





Feb 13, 2023 11:04:00 AM
13.402648N 123.765177E
356° N
Altitude: 57.7m
Speed: 0.2km/h

vetiver grass planting at brgy. Rawis San Miguel Island, Tabaco City



Feb 13, 2023 11:02:09 AM
13.402658N 123.765200E
330° NW
Altitude: 55.3m
Speed: 0.0km/h

ing at brgy. Rawis San Miguel Island, Tabaco City

SPREAD THE LOVE...

Inspired by the seawall in Brgy. Hacienda, residents of a coastal community in Rawis have already begun their own version of a vetiver structure to mitigate the effects of high tide waters and possible storm surges on their homes. The grasses were provided by the TCG-CENRO.

LEFT: Tabaco City's sanitary landfill now has a vetiver nursery that served as a source of planting materials for the grasses that now surrounds the perimeter of Cell Number 1 of the said facility.

RIGHT: The landfill's waste treatment facility also has an overflow drain that is planted to liquid waste-absorbing vetiver grasses.





-Initial results HAVE NOT BEEN GOOD as there might not have been enough vetiver planted along the septic tanks that have now overflown as well as lack of community buy-in.



Feb 13, 2023 10:05:54
13°21'18.6935"N 123°41'38.90774"E

After being informed and given materials that vetiver can drain liquid waste/effluents from septic tanks, which was confirmed by one of its employees, the CENRO immediately planted vetiver grasses along the perimeter of septic tanks in a temporary relocation site.



May 26, 2023 09:57:52
13.3555N 123.6927E
Tabaco City, Albay

-City environment officials met with residents to explain why it would be good to plant and maintain such grasses near their septic tanks.



May 28, 2023 8:06:39 AM
Tzu Chi Village, San Vicente Tabaco.

-The residents again helped out in planting the vetiver around the septic tanks.



Planned Vetiver Projects Include...



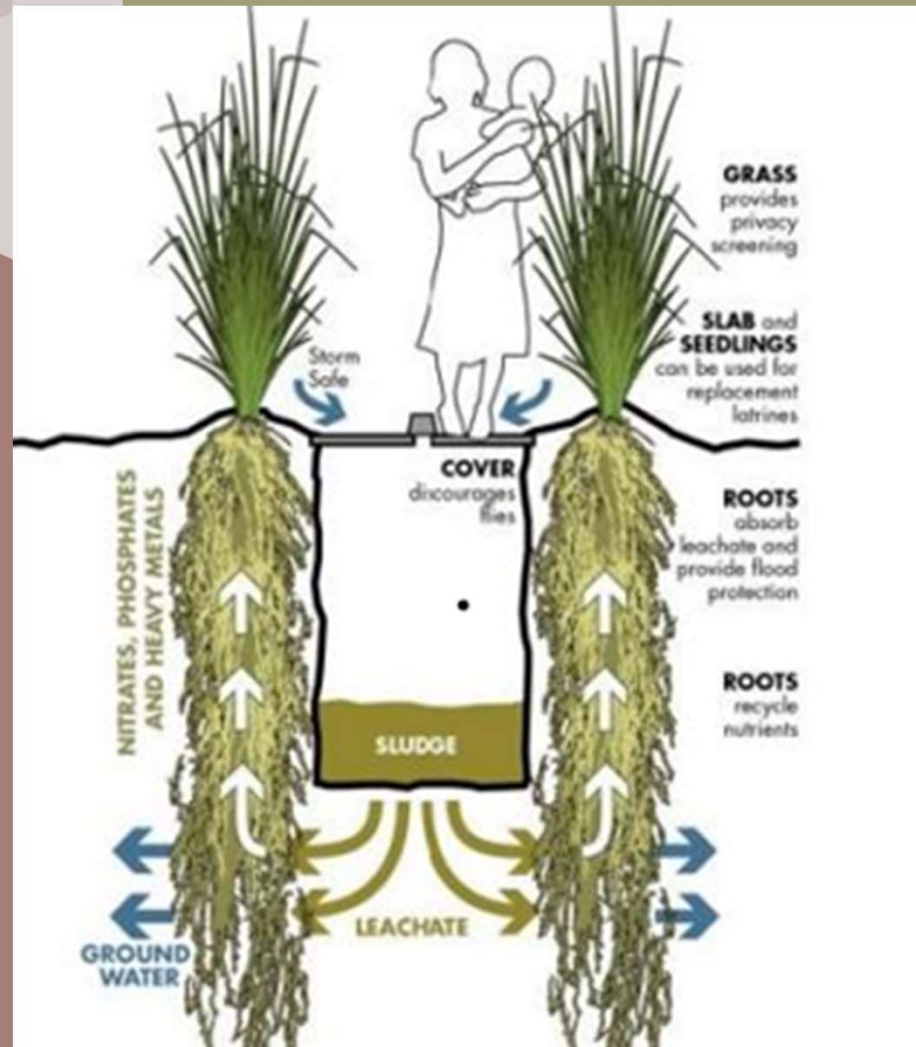


Natunawan "Island", a sandbar/cove found in Tabaco City, has been receiving an inordinate amount of plastic from the LGU's mainland coastal settlements.



The TCG-CENRO is planning to propagate vetiver hedges a bit further from the cove's high tide point as a form of plastic trap/blocker for easier non-biodegradable waste collection.

The Tabaco CENRO will suggest to a partner NGO that perhaps the establishment of Vetiver Latrines could be undertaken as a pilot project in Tabaco's disaster-vulnerable upland barangays of Buang, Buhian, and Magapo. A vetiver latrine only 1/20th of the cost of a standard latrine.





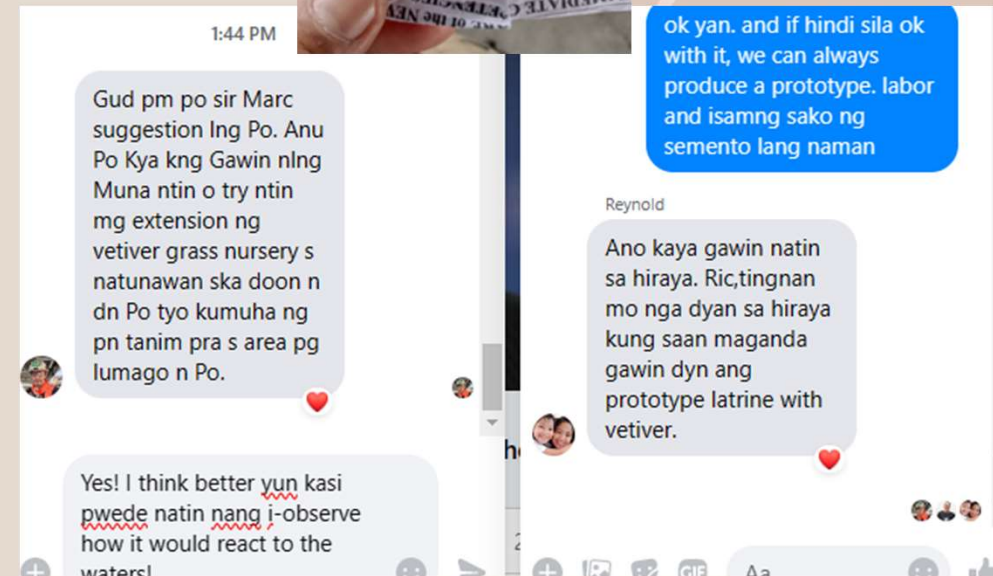
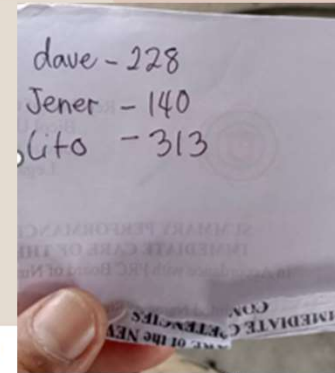
-With an ever-expanding supply, the TCG, with the assistance of the CBSUA Vetiver Center, is planning to promote the processing of vetiver stems into handicrafts such as baskets, bayongs, sleeping mats, rugs, and hampers, among others.

-In the future, the multipurpose vetiver grass may be a more stable and sustainable source of raw material that could replace the somewhat exhausted karagumoy stock of the city's island communities.

-Farming vetiver for its roots to make essential oils is another possibility.

Some insights...

- Problems serve as an opportunity to think 'outside of the box'
- No man or institution is an island: WORK TOGETHER!! 😊
- Sustainability and good governance is a collaborative endeavor
- Constant communication and exchange of ideas is key
- FAMILIARITY + CONSANT USE can result in CREATIVE IDEAS
- TREAT VETIVER LIKE LEGO (PLAY WITH IT! 😊)
- A thing or object begins to have value if it becomes part of your everyday existence.
- COMMUNITY BUY-IN is important.
- What seems workable can be CONTAGIOUS! 😊
- Sustainability or resilience also means TRYING OUT NEW THINGS to see what works and what does not.



The background features a light gray gradient. On the left, there is a faint, stylized illustration of a leafy branch. On the right, there is a large, solid olive-green shape with a white outline that curves around the text. In the bottom left corner, there is a solid reddish-brown shape. The text is centered in a dark brown, serif font.

Salamaton po
saindong
Pagdangog!