



VANUATU CLIMATE CHANGE AND DISASTER RISK REDUCTION



LESSONS LEARNED AND BEST ADAPTATION PRACTICE PROFILE

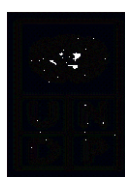
BUILDING RESILIENCE TO CLIMATE CHANGE IN PACIFIC COMMUNITIES



Participatory 3 Dimension Modelling - Ridge to Reef Approach Epi Island, Shefa Province Pacific Adaptation to Climate Change (PACC) Project



*Epi Island Community Participatory 3 Dimension Model
[All photos/images sourced with permission from Vanuatu PACC Team, July 2013]*



PROJECT BRIEF |

Participatory 3 Dimension Modelling (P3DM) integrated with GPS and GIS applications in the contexts of collaborative natural resource management and customary resource tenure, the exercise in Epi envisages introducing the practice in the area of integrating Scientific Knowledge and Local Knowledge as the foundation where by Community vulnerability & assessment and adaptation intervention planning is executed.

PROJECT DURATION | 2013

LOCATION(S) COVERED |

Epi Island, Shefa Province

FUNDING |

GEF via UNDP and SPREP

PARTNERS/COOPERATING ORGANIZATIONS|

PWD, VMGD, Department of Fisheries, Agriculture and Forestry, Lands and Survey Department and Environment Unit

OBJECTIVES & GOALS |

This P3DM exercise serves as a pilot intervention and concurrently as a training ground for practitioners in Vanuatu. Incorporating geo-accurate community-based mapping techniques in the planning process offers the opportunity to increase accuracy and relevance of local knowledge and stimulate increased sharing of knowledge among insiders and outsiders. Furthermore, the ownership of the management regimes resulting from the participatory planning process will rest with the local communities of Epi and PACC Vanuatu is responsible for its implementation. The more complete, accurate, visible and relevant (to the users) the collated information on resource distribution and use -, the more effective the decision-making process will be.

STRATEGIES & PROCESSES/METHODS |

Firstly is to introduce, showcase and document improved spatial information and communication management practices in the context of community-based spatial planning and to improve community-mapping skills among selected practitioners in Vanuatu and share lessons learned.

And secondly, in the process the P3D Modelling exercise will improve the ability of residents of Epi Island in developing and implementing an integrated Coastal Climate Change Adaptation Plan of their respective areas.

These two above objectives will be attained via the delivery of the following outputs:

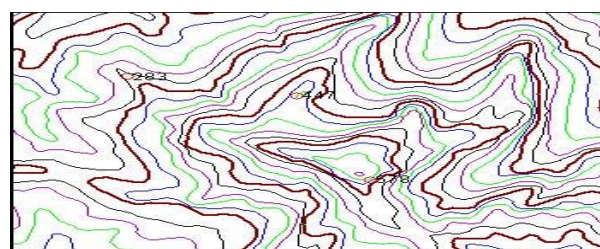
- I. Phase 1 Preparatory
- II. Phase 2 Workshop 1 - Mapping and model construction
- III. Phase 3 Workshop 2 - Community consultation and Adaptation planning

PHASE I - PREPARATORY PHASE

- (i) consulting and mobilizing students and stakeholders



- (ii) sourcing spatial data and preparing the base map,



Section of the base map. Contour lines are color-coded to facilitate tracing

The terrestrial contour digital data was readily available from the Lands and Surveys Department. Nevertheless this data required cleaning and conditioning. The terrestrial contour interval is 20-m starting from 0-m elevation corresponding to the mean high water mark.

- (iii) choosing the appropriate mapping scales (vertical and horizontal);



The full island of Epi was selected for the mapping exercise includes the terrestrial, its lakes and surrounding coral reefs and measures 18 km by 20 km. The scales are the following: 1:20,000 horizontal and 1:6,666 vertical. The larger vertical scale has been chosen taking into consideration the need to enhance the perception of slope and to meet the carton board thickness (3-mm). Joining one and half ply sheets has ensured easier access to the working space. The two tables were joined every evening and on completion of the exercise.

- (iv) procuring workshop inputs and on-site delivery

PHASE 2- WORKSHOP 1- MAPPING AND MODEL CONSTRUCTION

Constructing Model base and base map



The base map is placed on top of the model base where the latitude and longitude are marked to the model base.

Different stages of model construction



Preparing base map for tracing with carbon paper



Single contour tracing using the base map as a reference. Sheets labelled with the contour elevation and a north-pointing arrow, for proper orientation..



Contours cutting from cardboard sheets.



Contour sheets superimposed on one another and pasted together.



Once dry and secure, the model is covered with a thin paper, pasted using acrylic white or translucent gel medium. This paper smoothes out the contour layers and helps with terrain continuity.



The model is then painted and the student populate existing data such as roads, rivers, streams, airstrips, public buildings and telecommunication towers by painting and pins with tags.

PHASE 3 - WORKSHOP 2-COMMUNITY CONSULTATION AND ADAPTATION PLANNING



Elders of the community mapping out physical features of their villages on the 3-D model of Epi



Workshop participants learning from professionals



PLAN & SUSTAINABILITY |

As experienced by project implementers and participators, the P3DM tool is a vital tool for be integrated in future projects as such to gather community aided participatory.

BEST PRACTICES |

The P3DM was very effective for both the professionals and the communities as it allows for the easily visualization of the terrestrial layout of the entire island. It made it easy to illustrate the ridge to reef approach as the professionals can refer to a particular watershed boundary and explain the ecological mechanisms that existed in that water shed with the local knowledge input from the villagers. It is a very cost effective tool by which a lot of time and money is saved through the fact the professional need not actually go to the specific water shed boundaries but could conduct assessments quickly on the model with the locals provide the accurate knowledge that is required for that particular assessment.

Using the students to build the model was another time and money saving exercise for this workshop compared to the idea of the workshop participants to build the model as this will mean that we will keep a larger group for a longer period.

The quality and quantity of the local knowledge gathered during the workshop was more accurate as it was acquired in a controlled environment where all the data can be checked by the communities and also the professionals can identify clearly on the model the extend of the boundaries of the data collection and types of date required.

For planning purposes, the data collected can be quantified and linear measurements can be taken off the model as it is being built to scale.

The communities and others who are not trained to interpret 2D maps found out that a 3D model is more the way to go in understanding the topography of an island. This helps the decision makers to have a more clearer perspective on mapping out the issues and problems faced and therefore can easily device adaption options that will address these

issues.

LESSONS LEARNED |

The scale 1:20,000 and the contour interval of 20m used for the model of Epi was okay but the PACC team felt that it would be much more better to build the model in a scale of 1: 10,000 would be much better as we can accommodate contour intervals of 10m which will make the model more bigger and more features can be easily shown in the model especially land use.

The team also noted that bringing all the participants from the 4 area councils to one workshop was too crowded as there was always time constrains issues and does not allow the team and the participants to be more thorough in tracking deeper the discussion points and plotting the outcomes in the model.

The cost benefit analysis information can also be gathered but again the time frame could not allow this to happen.

For Epi, proper community mapping practices such as P3DM assisted in raising climate change awareness and developing community-owned and consensual management and adaptation plans. It also helped the communities to better understand their island ecology by visualizing the different watershed boundaries and understand the ecological relationship between the terrestrial and marine ecosystems. This assisted the communities of Epi to review the way they interact with their Island ecosystems and shift their paradigm accordingly.



Final Product

[All photos used with permission from Vanuatu PACC Team, July 2013]



For more information

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