

Risk Profiling for the Volta Delta, Ghana

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Introduction

Risk profiling is the process for determining a suitable environment for the sustenance of livelihood of Communities in the Delta investment strategy with regard to risk. In the event of climate change, risk is at the heart of every action of the people in the Volta Delta.

Development of any planning scheme or formulating policies to manage activities in the Delta, risk profiling is expected to be the main focus. Such a process is likely to be appropriate for determining scheduled intervention or designing efficient strategy to reduce risk. Conversely, sound risk profiling practices will result in suitable advice, where individuals would understand the potential consequences of their range of decisions. The core of this work is to present a general overview of risk profile of the Volta Delta.

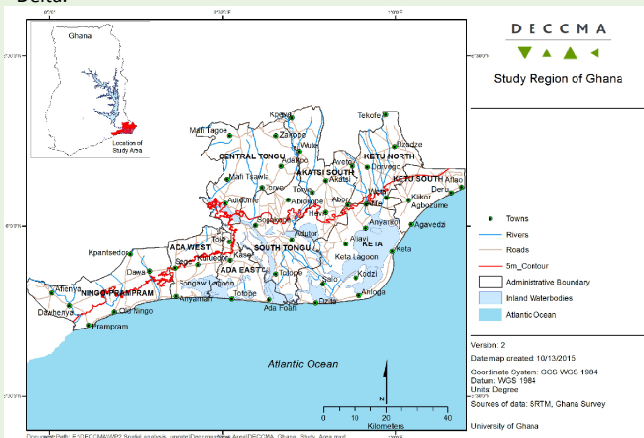


Figure 1: Map of the Study Area

Materials and Methods

- ❖ The theory underpinning this study is concepts of Modern Portfolio Theory (MPT), MPT attempts to maximize expected portfolio return for a given amount of portfolio risk (or equivalently to minimize risk for a given level of expected return) by carefully choosing the proportions of various asset classes in the portfolio.
- ❖ MPT gave rise to the idea of an efficient frontier (Figure 2) where the frontier represents the optimal risk/return relationship (Figure 3). For the use of the environment or a location, the community should be able to (1) offer portfolios that were on or close to the efficient frontier and (2) determine where, on the efficient frontier, a particular activity portfolio should appropriately be positioned.

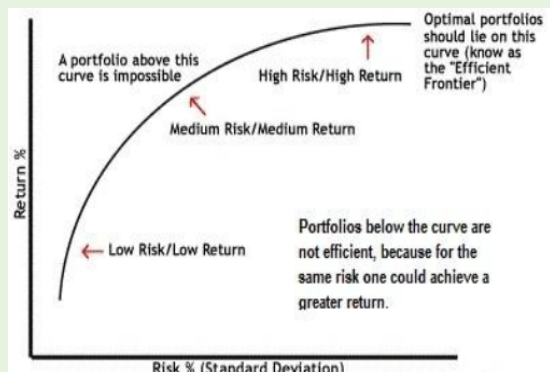


Figure 2: frontier represents the optimal risk/return relationship

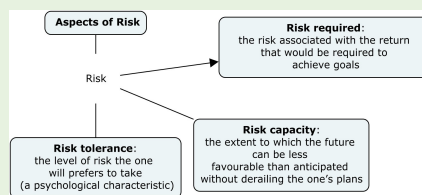


Figure 3: Three aspect of Risk

The MPT assumes that people living in the Volta Delta are risk adverse, meaning that given different portfolios that offer the same expected return, they will prefer the less risky one. Thus, they will take on increased risk only if compensated by higher expected returns. Conversely, those who want higher expected returns must accept more risk.

Data Required and Method of Analysis

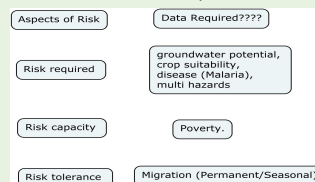


Figure 4 Data Required

The Cox proportional hazards regression model will be used as the model for the risk profile. The Cox model provides a simple formula for estimating the probabilities of environmental suitability specified levels of the risk factors. Variables attaining the 0.05 level of probability will be retained in the final models. All of these variables would be tested for the proportional hazards assumption.

Preliminary Results (Using two variables)

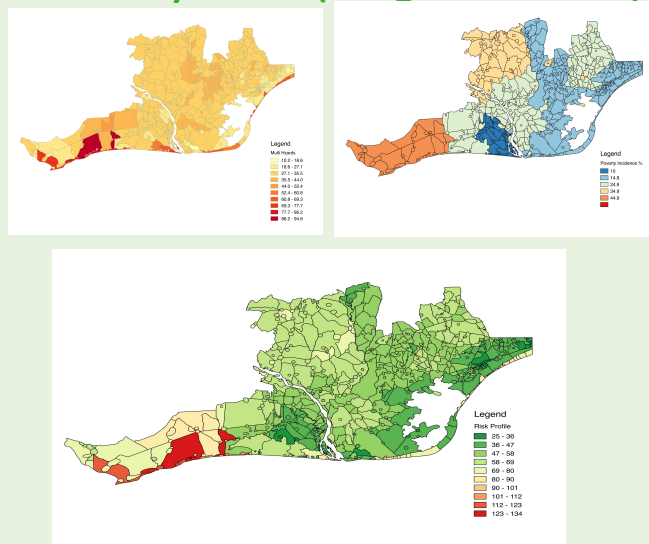


Figure 5 Risk Profile of the Volta Delta

Conclusion

- The probability of risk within the Volta Delta depends on the presence and level of risk factors.
- Future changes to the intensity and distribution of risk, still highly uncertain and are also an important driver of future trends.

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